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THE PRESENT TREND OF THOUGHT IN REGARD TO KIDNEY FUNCTIONS AND DISEASES.

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The literature that has accumulated in recent times with regard to the kidney, its functions and diseases, will make a considerable library and a review of this literature would consume weeks of time. Out of all that has been said and written, there are a few outstanding ideas that are gaining way which seem to be backed up by clinical and experimental evidence. It is these ideas which will be briefly discussed in the following pages.

FUNCTION

Until recently, it was thought and taught that any abnormality found in urine was due to some fault of the kidney. Therefore, diseases like diabetes, rheumatism, gout, and conditions like uremia were all thought to be conditions due to kidney involvement. Late studies of the chemistry of the blood and some experimental work has shown that in these conditions the kidney plays no essential part and, as a matter of fact, may be quite normal. One of the chief functions of the kidney is to maintain a chemical equilibrium of the blood by removing any excesses that the circulative fluids may contain. So that sugar appearing in the urine simply means that there is too much sugar in the blood and that the kidney in throwing it out is performing its simple and essential function, as above mentioned, in regard to such substances. The process is very similar to that met with in the increasing output of urine at times when there has been an excessive intake of fluids.

In a case of retention of substances which should be eliminated, such as are met with in gout and similar conditions, three factors must be considered, two of which have nothing to do with the kidney itself. The first of these factors is that the substance to be eliminated must be present in the blood as a certain definite chemical substance. Whether it is or not depends on the activity of other organs in the body than the kidneys. Many times it happens that these substances either are not properly compounded out of the radicals and esters resulting from metabolism, or they have not been properly reduced from more elaborate compounds, so that the kidney is not presented with the substances which it normally should be and which it is prepared to remove from the blood, therefore these substances are retained in the blood and bring about lesions in other parts of the body or pathological systemic conditions. Second, we may also find that there are pathological conditions in certain tissues of the body which have a tendency to retain or precipitate from the blood stream substances which might be eliminated by the kidneys should they reach the kidney in sufficient concentration, because it is more the excess than any substance *per se* that is eliminated by the kidney. Thus we find the deposits in the cartilages in cases of gout of substances which are usually found in the urine but not in the exact combination they are met with in the cartilages. It is a known fact that cartilages contain rather powerful precipitates for both organic and inorganic compounds. If these precipitates should become abnormal, there would be a tendency to precipitate substances that belong to a given class of compounds instead of just those that are normally precipitated in these parts. As a result, we will find collections of precipitated salts in the cartilages resulting in the characteristic tophi, yet the fault may be in the cartilages, not in the kidney.

One reason for retentions which may be laid at the door of the kidney is the fact of the secretory threshold. In other words, until the concentration of a substance in the blood reaches a certain point, it will not be eliminated by the kidneys. This is

known as the threshold. Undoubtedly there are conditions which arise in the kidneys themselves due to improper nourishment of the kidney cells, or to other factors, which would raise the threshold. In other words, the concentration of a given substance in the blood would have to be much greater before the kidney would begin extracting it than would normally be the case. As a result these substances would be retained in the blood in abnormal and deleterious quantities.

Another factor that plays an important part in retentions in which the kidney is the principal actor is the physiological efficiency of the kidney. That is, the normal, healthy adult kidney has an efficiency of approximately eight times the physiological minimum, or the minimum of function which must be maintained in order that life may continue. Now then, if, through any process, the efficiency of the kidney is reduced, its ability to handle substances in the blood would be lessened in proportion to the reduction of its physiological efficiency. Therefore, in a given case of a kidney which is still able to function, the kidney units may be perfectly normal and able to do their regular quota of work but because of a reduced amount of functioning tissue, the organ would not be able to take care of any excess or eventually of even normal amounts of many substances that should be excreted. It is further quite possible that more than one or all of these factors may be operating in a given case and the point is that the clinician should attempt to determine in a given case of retention which of these factors is operating in a particular instance, and determine the treatment accordingly.

Just how the kidney produces urine is not exactly known. Each year finds another theory receiving the majority of votes, only to be proven inadequate and unsatisfactory and another theory ushered in next year. Up to the present time we can definitely say that no theory yet propounded by physiologists or biochemists has stood or will stand the test of clinical and pathological experiences. There are certain fundamental difficulties which make it next to impossible to settle once and for all the question as to the exact mode of urine production. The chief one of these is that on account of their minute size it is impossible to secure samples of urine from the different parts of a uriniferous unit. Perhaps when physicists have devised cannulas of microscopic caliber, physiologists will then have in their possession an instrument for making these exact determinations. Until that time arrives, we will have to be content with deductions from histological, anatomical, and physiological facts. There are, however, certain things we know about the production of urine and there are certain definite, basic, structural facts from which we can draw conclusions provided we do not blind ourselves by test tube and dialyzing membrane factors.

We know that urine is produced by structural units known as uriniferous units. We know that each unit is structurally divided into four parts which, while connected and forming a continuous tubular structure, nevertheless vary in morphological and histological details, and, since we know that function is dependent on structure, unless we assume that here is an exception in the biological world, there must be four steps to the production of urine. Most of the theories now current give only two. We know that each of these uriniferous units has a double blood supply. That is, the blood which supplies certain parts of each unit has a different origin from that supplying another part of the same unit. This is a fact that physiologists and biochemists have persistently ignored. Since there are four classes of substances found in urine, it is only natural to suppose that each of the four structure divisions of a uriniferous unit would have to deal with a separate class of urinary content. We know also that the uriniferous units work in shifts and that, while some are increasing activity toward the climax of function, others are at the climax, others are decreasing and still others are at rest. These factors have been proven by experimentation and observation from pathological findings. The facts above noted are as far as our exact knowledge goes. Anything further is conjecture. No theory of urine production can be given much credence or weight unless it will explain clinical findings and pathological facts.

DISEASES

Barring anomalies and neoplasms, and those conditions due to a mechanical obstruction of the lower urinary passages, the principal pathological conditions met with in the kidney are those connected with the formation of stones and various forms of nephritis.

Kidney stones may be composed of a variety of substances. Right here it might

be interesting to note that all of these substances are not impervious to X-ray. Consequently, the absence of a shadow in an X-ray plate is not conclusive evidence that there is not a kidney stone. All stones are merely precipitated masses of urine content and are due to one or two or a combination of two factors: first, a supersaturated solution; second, an approximate precipitant. This is true regardless of what kind of stone may be present.

Nephritis may be divided into three classes: first, infectious nephritis due to the actual presence and activity of microorganisms; second, functional nephritis due to a temporary paralysis of the kidney either from some abnormal nerve stimulation, interference with the blood supply, or the presence of some paralyzing chemical substance. This form is usually temporary and, although it may be extensive enough to endanger the patient's life, if he recovers, the kidneys will again resume normal function. Third, anatomical nephritis, sometimes also called toxic nephritis because it is usually of toxic etiology, always results in a reduction of the physiological capacity of the kidney by reducing the number of units capable of performing uriniferous function.

Of the three kinds of nephritis above mentioned, the first and third are of greatest frequency and also of greatest seriousness. Infectious nephritis may be caused by a number of different kinds of organisms, including members of the typhoid colon group, the pyogenic organisms, and bacillus tuberculosis. This form of nephritis may be acute or chronic and result in the destruction of a great deal of kidney tissue so that the kidneys may eventually be reduced to below the physiological minimum. However, the symptoms in this type of nephritis are so characteristic and the diagnosis so easily clinched by laboratory methods that no one need long be in doubt as to whether or not he is dealing with an infectious nephritis. It is the anatomical nephritis about which so much has been written and said and which is so little understood by the majority, even of medical men. It used to be thought and still is by a great many practititioners that this form of nephritis usually sets in during the middle or latter part of life and once induced continues a chronic course to death, and therefore has long been considered as an incurable condition. Nothing could be further from the truth. The fact is, however, that by the time the symptoms of this form of nephritis have become so apparent as to cause the sufferer to seek medical aid, the kidneys are at or near the physiological minimum of function and, therefore, any little extra work thrown on the kidneys from any cause will find the kidneys unable to withstand the extra functional demand and death will ensue. There is one case on record of where this type of nephritis had proceeded to such a degree that it was detected by a surgeon during an abdominal exploration for other reasons thirteen years before the death of the patient occurred or before definite nephritic symptoms had developed. This form of nephritis is due to the presence in the blood stream of excesses of protein analysis and may in fact attack the kidneys before birth or at any subsequent time. We know definitely that it is present during any febrile condition or in any diseased condition accompanied by fever, ulceration, or tissue necrosis, whether from bacterial invasion, burns, or gas asphyxiation. What happens in the kidneys is this: the uriniferous units are affected according to their functional activity at the particular time of toxic showers and that should the patient live ,some of these units will be so overcome that they will be unable to regain their functioning condition. Therefore, these units are forever lost to the kidney. These lost units can be found in the examination of any normal kidney of whatever age, so far as years are concerned, the patient may have been at the time of death. Each succeeding condition suffered by the patient which is characterized by excessive protein analysis will result in the loss of additional uriniferous units. Thus it will happen that eventually the number of uriniferous units capable of functioning will have been reduced to the point spoken of above as the physiological minimum. At this time symptoms of chronic nephritis begin to appear. Because the kidney is so reduced, the span of life after the appearance of these symptoms is usually short.

We see a good deal in the literature about chronic parenchymatous nephritis and chronic interstitial nephritis. The condition we are usually dealing with is that chronic parenchymatous nephritis is an acute or subacute toxic nephritis in the kidney whose physiological efficiency has been greatly reduced. The histological picture of the small white kidney (chronic parenchymatous nephritis) is exactly that of a more normal kidney during an attack

of acute parenchymatous nephritis except that the functioning part in the former case is greatly reduced over that of the latter. Chronic interstitial nephritis is simply that the kidney has approached its physiological minimum by the process as above described.

The anatomical nephritis is also sometimes known as arteriosclerotic because in these kidneys we often meet a condition of arteriosclerosis of the intrinsic arteries. Here we have the old question of which is first, the hen or the egg. We know that it is a common process in any part of the body that as the demand for blood supply is reduced, there will be a change in the walls of the blood vessels supplying that part, which will result in a reduction of the caliber of the lumen. As applied to the kidney, if the uriniferous units have been reduced through any cause, the functional blood supply demand will be correspondingly reduced by the process above mentioned. It very often happens that these modified vessel walls are the site of deposits which give the characteristic arteriosclerotic or pipe stem vessel. We also know of the presence of arteriosclerosis in organs where there is no reduced functional demand. Hence, it might well be that this process would occur spontaneously in the kidney. We also know that any reduction in blood supply to uriniferous units will result in the atrophy of the cells and consequent loss of the units so affected. We are inclined to believe that in the majority of cases the arteriosclerotic process is secondary to the nephritic processes, because we know that there is a reduction in uriniferous units beginning very early in life at times and under circumstances in which arteriosclerosis is never met. But, on the other hand, should arteriosclerosis attack the intrinsic nephritic vessels, the conditions similar to those met with in ordinary chronic interstitial nephritis may be found.

On the basis of the more exact knowledge we may have of these kidney conditions, the treatment of nephritis, especially of the chronic type and toxic types, should be modified. For example, any type of medication which is calculated to stimulate the kidneys to greater activity should be avoided and the work of the kidneys lightened by employment of other means of elimination.

ACUTE UPPER RESPIRATORY CONDITIONS IN CHILDHOOD*

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Physicians and public health workers now face diseases of the respiratory passages as one of the dominant causes of morbidity and mortality in the early years of life; so it seems opportune that upper respiratory infections, with some possible preventive measures might be considered and discussed in this section, pertaining more particularly to infancy and early life or pre-school age.

Familiarity breeds contempt. There is too much indifference toward the common cold by the medical profession. Perhaps if we designated head colds or common colds as naso-pharyngitis, the laity would be more impressed and feel more constrained to treat the condition with its sequela and complications, as of more serious portent. The common cold is a preface to graver diseases in early life. The anatomical pecularities of the naso-pharynx and para-nasal sinuses contribute much to the severity of the inflammatory process.

The nasal cavity at birth is relatively long and the respiratory portion is very narrow; thus we see how the lymphoid tissue or so called adenoids add to the obstruction of this passage. The opening of the posterior nares is very small. The eustachian tube is of relatively large lumen and is nearly horizontal at birth, opening at the level of the hard palate, thus lending easy access to the middle ear. The ethmoid is present but has no cells till the fourth year. The maxillary antra are present at birth and may become infected at any age. The mastoid cells do not exist at birth, but are numerous at three years.

ETIOLOGY OF ACUTE NASO-PHARYNGITIS

(a) Adenoids, often present from birth, are a very important etiological factor in its production. Adenoiditis and ethmoiditis are a part of almost every acute or chronic naso-pharyngitis.

(b) Contact with those already infected, with cough, sneezing, etc.

(c) Exposure to cold, drafts or any condition lowering the surface temperature with a resulting anemia of the respiratory mucous membrane, thus furnishing a more fertile soil for the offending organism of whatever the nature of the infection. No doubt such infections as infantile

paralysis, encephalitis and meningitis find this area easy portal of entry during an acute naso-pharyngitis.

SYMPTOMS

Symptoms for the most part are too evident to need detailed description. Nasal discharge; blocking of the nose by swelling of the mucous membrane; enforced mouth breathing with its restlessness, interference with nursing and swallowing produced by the a c c o m p a ny i n g adenoids. Temperature 100 to 105, which, by its erratic curve may simulate any disease in infancy.

COMPLICATIONS

1. Para-nasal sinusitis is a frequent complication of naso-pharyngitis of which so much has been recently said by Dean and Jeans, of Iowa University, and Marriott of Washington University. These sinus infections acting as a focus in the production of diarrheas, pyelitis, hemorrhagic nephritis, nephrosis, arthritis, etc.

2. Otitis media is frequent, due to the aforementioned anatomic pecularities in infancy, which is potentially a mastoiditis.

3. Ethmoiditis with its tendency to long persistent coryzas.

4. Maxillary antra involvment which is not infrequent, and may become chronic, affecting distant parts of the body.

5. Frontal sinus involvement, though rare before the fifth year.

6. Laryngitis and bronchitis plus posterior cervical adenitis marks the downward extension.

TREATMENT

Put to bed for two or three days during the acute stage, w h e t h e r it be naso-pharyngitis, bronchitis or both. There are no curative drugs. Aspirin lends to the comfort of the child, and is harmless in appropriate doses. Time honored practice of giving carthartics at the beginning do no good and may do harm.

4. Inhalations of compound Tr. benzoin, and simple local treatment by instillations into the nostrils may be of benefit, and should be used if practical.

If put to bed early and kept there during the acute stage, time is saved and danger of complications lessened.

Last and by far the most important treatment is preventive. It is the object of this paper to stress this phase of the subject. It is through the cooperation of the obstetrician, general practitioner and pediatrician, the health worker and the education of the public that any preventive measure may be found.

Dr. Edgar Sydenstriker, statistician of the United States Public Health Service, makes some interesting observations relative to prevention and morbidity of respiratory diseases. An editorial in the American Medical Association Journal, April 19, 1928, quotes him as stating that in a house to house canvas by health workers in Great Britain, Canada and America, grouping of diseases showed colds and bronchitis to constitute more than one-fourth of all the ailments reported. The United States Public Health Service showed in a recent survey that in the typical American communities, that respiratory infections lead all other illnesses. He further remarked that this is a "special province of the general practitioner." But certainly it is also within the province of the obstetrician and pediatrician to do something; for the pediatrician is nothing more or less than the general practitioner plus more training in infant feeding and some of the nutritional disturbances peculiar to early life.

Preventive measures should begin even in the delivery room. When I see a new born (of the fatal, first fourteen days' period) with snuffles, head cold or bronchitis I know that the delivery room was cold, the baby was carelessly bathed and allowed to get blue to the elbows or knees, or carried through a drafty hall to be nursed, and perhaps by a nurse with an acute upper respiratory infection herself, all of which is preventable, and the obstetrician is responsible for.

Adenoiditis is so frequent at this age that infants and young children who show a tendency to repeated head colds should have the adenoid tissue removed despite the prejudice to the early operation.

The parents should be taught the dangers of contact with those having head colds and coughs. Avoid the children's parties, crowed picture shows and Sunday school during the prevelance of upper respiratory infections.

The school swimming pools seem to me to be a fertile source for spreading infection to older children who have enlarged turbinates, deflected septa, hypertrophied tonsils and adenoids. And these same children should be guarded from sudden cooling of the body, over exercise, fatigue, drafts, wet feet, etc.

It should be remembered that the well nourished baby who has had a well balanced food, whether artifically or breast fed, has a far greater resistance to respiratory infections, and even if such occurs, more readily reacts against them.

To quote Sydenstriker: to sum it all up—the right time to cure a case of bronchopneumonia, following a common cold, is to cure it while the infection is still a common cold.

With the assistance of the public worker we must enlist the cooperation of the laity by acquainting them with the dangers of respiratory infections and teaching them preventive measures.

The effect of respiratory diseases are often remote and it is hard to correlate cause and effect.

That respiratory infections which produce only a mild indisposition in adults may in infancy and early childhood lead to the gravest illness.

In conclusion, it may be said that the problem of the prevention and control of respiratory diseases during infancy and early childhood, while of immense proportions lends itself nevertheless to possibilities that are hopeful. Education of the laity can accomplish a great deal as is shown by the fact that the infant mortality rate and the mortality rate of children under five years of age from respiratory diseases in communities where it has been possible to obtain reliable data has shown a definite and steady decline.

It seems timely that every pediatrician and general practitioner should perfect himself in the managment of respiratory ills.

THE MANAGEMENT OF LARYNGEAL DIPHTHERIA*

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Fortunately for the patient, diphtheria usually runs a regular course. The temperature usually is low, the pulse rate unusually fast, the membrane covers the space between the follicles, whether on the tonsil or pharynx, and the patient's color is usually sallow.

Laryngeal diphtheria may start as such or may come secondarily to pharyngeal or bronchial infection. Any croup case that lasts out the night should be viewed with suspicion, whether the membrane is in sight or not.

As the membrane fills in the larynx, there is also an element of spasm in the dyspnoea, and for that reason emetics will occasionally give temporary relief, but these cases do not entirely clear up with ipecac.

Given a child between the ages of one year and ten, with slight sore throat for a couple of days then, a day of hoarseness which continues, low temperature and fast pulse, generally above 110, and sallow color, it should be treated as diphtheria, regardless of cultures or whether membrane is in sight or not; however, usually it will be visible.

As to the amount of antitoxin given, there are three factors that determine the dose, i.e., the younger the child, the larger the dose; the longer the infection has been present and therefore the sicker the patient, the larger the dose, and the more laryngeal the larger the dose. For example: a child two years old with laryngeal diphtheria four or five days old will need not less than 50,000 units to get the best results, whereas, a child of ten with pharyngeal diphtheria of three or four days standing will get well just as certainly with 30,000 units.

As to the method of administration, intravenous serum will begin to help in about four hours, intra peritoneal serum will help in about eight hours and intra muscular therapy in about twelve hours. In laryngeal cases, I believe the method of choice is the intra peritoneal route because then a large amount of normal saline solution can be given at the same time, which usually tides them past the highly toxic state until the serum has had time to work.

Now as to the emergency aspect of laryngeal diphtheria, I have reached several definite conclusions: First, if the baby is not too toxic, intubation should be done, always having a tracheotomy set ready in case the membrane rolls up and plugs the tube. Second, if the patient is extremely toxic, tracheotomy should be done with local anesthesia and as rapidly as possible. There is less shock and considerably less danger to the patient from a tracheotomy than from intubation. Also the less skilled one is in intubating these patients, the greater the hazard.

The physiology is this: due to the dyspnoea, apnoea, and anoxemia, the carbon

dioxide collects in large amounts in the blood, P. H. rises and a stimulation of the respiratory centers occurs, all the accessory muscles being brought into play. Toxemia and acidosis increase with the resulting fatty degeneration of the myocardium. The patient has no reserve oxygen in the tissues or blood, and the respiratory centers are stimulated to their utmost. When the intubation begins, the finger is placed on the epiglottis, and there immediately occurs a reflex spasm of the laryngeal muscles, stopping any further respiration. The tube must then be inserted quickly between the spastic swollen cords and on down through the larynx, thus overcoming the spasm, and providing an air way. If everything goes well, the patient only holds his breath about five to ten seconds. During this period of apnoea, the respiratory centers become over-stimulated throwing all the muscles of respiration into tonic contraction. If not relieved this ceases after two or three convulsive attempts at breathing. The heart, however, usually continues to beat for about one minute more, then stops, due to anoxemia, toxemia and fatty degeneration.

Therefore, if the patient is too dyspnoeic and too toxic to hold his breath more than 10 seconds, tracheotomy should be done at first. No intubation should ever be done without a tracheotomy set ready and open. If the patient quits breathing, due to obstruction by the membrane then do tracheotomy, if from apnoea only, then continue the intubation and give artificial respiration.

In these cases lobelin, adrenalin or other quick stimulants do not help since the respiratory centers have already been stimulated to death. Only oxygen will help, either through the intubation tube or the tracheotomy tube.

Having arranged so that the patient can breathe, the proper amount of antitoxin should be given in the peritoneum with as large amount of normal saline as he will stand.

The intubation tube should be removed in 48 to 72 hours, being ready again to replace it or do trachetomy if the loosened membrane around the tube chokes him up. Usually, however, when the tube is removed the patient will cough up at the same time a cast of the larynx and have an uneventful recovery from that time.

The tracheotomy tube should be removed in 48 to 72 hours and the neck wound not closed. This stays open about three or four days longer and gives him an emergency air-way until all the membrane is out of the larynx. In ten days, this neck wound closes and the patient is well. They should all be kept in bed two weeks after their antitoxin to lessen the chance of paralysis and give the myocardium a chance to repair itself.

FOREIGN BODIES IN THE AIR PASSAGES*

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In a recent review of peroral endoscopy Clerf calls attention to the increasing frequency of the employment of laryngoscopy, bronchoscopy and esophagoscopy as aids in diagnosis and treatment of disease. These procedures cannot be properly carried out by a mere neophyte suffering from egotism as the result of an infrequent visit to some reputable clinic. Jackson states that when skillfully introduced, there is no danger from the mere presence of a bronchoscope in the air tract. Introduction of instruments in the air and food passages by the untrained hand may inflict fatal trauma; even though dangerous and difficult the technique may be taught any physician or surgeon.

In order to obtain good results in the practice of peroral endoscopy one should have a team of trained workers. The question of time is ever important and the delay caused by petty annoyances resulting from poorly trained assistants may prove fatal to the innocent victim who seeks the master's skilled hand for relief.

The proper care of the patient before and after operation must be considered in every case. The condition of the patient must be considered in some cases, however, there should never be any contraindications to the removal of a foreign body from the food or air passages.

Foreign bodies in the food and air passages are common misfortunes usually resulting from accidental aspiration or swallowing. Due to the progress in diagnoses, foreign bodies are now found where formerly none had been observed. In some instances foreign bodies remain undiscovered for a long period of time and prove to be the cause of many complications.

*Read before the Section on Eye, Ear, Nose and Throat, Annual Meeting, Oklahoma State Medical Association, Tulsa, May, 1928.

The value of a good history in this type of work cannot be overlooked as the symptoms of gagging and choking frequently prove to be the essential factor in a very complicated case whose present complaint refers to some distant region. Patients who give a history of choking and gagging should be considered as foreign body subject until proved to the contrary. The history relating to difficult breathing associated with or without pain, may prove to be a valuable lead in discovering some forgotten and obscure foreign body in the air tract.

The symptoms of foreign bodies in the air passages are very elusive and vague. This, no doubt, accounts for the fact that foreign bodies are frequently overlooked and not found until some grave complication has developed. Although the aspiration of metallic foreign bodies may be followed by a symptomless interval, the experience of most workers is that some form of irritation is set up immediately. Unfortunately there is often a period between the time of accident and the occurrence of symptoms that prove detrimental to the patient. During this period of time weeks or months may elapse and the original accident be forgotten until the discovery of the foreign body in searching for the cause of the complication.

The customary symptoms of foreign bodies in the air passages are those of obstructed breathing or irritation and inflammation. There is usually a history of choking and coughing, however, this is not obligatory. The physical signs are those following obstruction and must be very carefully studied. In certain cases there is no obstruction, such as a common pin in the bronchus. Foreign bodies of vegetal origin in children often produce systemic reactions simulating pneumonia and bronchitis.

In the diagnosis of foreign bodies the history, physical findings and roentgen ray studies should be thoroughly studied. All subjects with obscure chest signs should receive the benefit of a roentgenray study as innumerable foreign bodies have been discovered in this manner.

Due to the fact that signs and symptoms of foreign bodies often simulate those of common diseases such as pneumonia, bronchitis, empyema, abscess, bronchiectasis, asthma and tuberculosis, the practitioner is prone to jump at the outstanding symptoms as well as the most conspicuous physical findings. Unless the possibility of a foreign body is considered in every case of pulmonary disease many foreign bodies will be overlooked.

The diagnosis of nonopaque foreign bodies in the air passage is frequently complicated and difficult. The excellent work of Manges shows that the outstanding changes are obstructive emphysema of both lungs with depression of both sides of the diaphragm and rotation of the heart with diminution of its transverse diameter at expiration. This diminished diameter can be definitely ascertained by actual measurements of the heart shadow on films exposed at the end of inspiration and expiration.

Wright reports the interesting case of a child, aged 2 years, who was admitted with a diagnosis of suspected laryngeal diphtheria. There was stridor and an asthmatoid wheeze, with physical signs of consolidation at the base of the right lung. A diagnosis was made of bronchial obstruction, probably of foreign body origin. When bronchoscopy was performed, a fragment of nut was found in the bronchus of the right lung. The recovery was uneventful and the diagnosis of diphtheria was not confirmed.

Foreign bodies in the air passages should be removed as soon as possible as they may become dislodged and migrate to more dangerous locations. The possibility of irritations by the foreign body causing edema, pneumonia and other lesions, should warrant the early removal of the offending member. Because one foreign body remains in the bronchus for years without causing any symptoms does not mean that all subsequent cases will terminate so favorably.

The common custom of beating the patient on the back, coughing and holding the head downward cannot be recommended as many foreign bodies are dislodged by such methods and immediately land in other locations less favorable to their easy and rapid removal. Many foreign bodies in the air passages have been dislocated by unnecessary movement of the patient and the resulting complications such as complete obstruction call for radical interference such as emergency tracheotomy.

Removal of foreign bodies from the trachea and upper air passages is relatively simple provided one has the necessary armamentarium. The removal of foreign bodies from the bronchi is more compli-

cated and requires more effort on the part of the operator.

The technic or removal is that with which the operator is more familiar. In the hands of some the Killian method is preferable whereas others prefer the technic of Jackson, and others prefer the suspension method of Lynch.

In the opinion of the writer foreign bodies in the air passages require detailed study comprising a good history, complete physical examination, thorough roentgen-ray study and removal at the earliest moment by the technic best suited to the individual case.

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CHRONIC PURULENT OTITIS MEDIA COMBINED TREATMENT*

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The first thing to decide is why the condition is chronic. Is it due to poor drainage through the drum membrane, due to the location of the hole in it—being either too high or too small—or due to blocking by granulations or to diseased cells in the mastoid or to the lack of proper drainage and ventilation through the eustachian tube or naso-pharynx.

First, I will say that I do not believe that we do either ourselves or our patients justice when we make up our minds as to the cause of an otitis from the examination of the external ear alone because there are causes that are not revealed by this kind of examination .

This is, however, the most important examination to be made, but we should know the bacteriology of the discharge and sometimes the X-ray will help in at least excluding some bony involvment, or complications.

The naso-pharyngeal examination is a most important part of our examination, including tonsils, teeth, and proper ventilation through the nose.

Many divide the causes of otitis according to the location of, or size of, the hole in the drum membrane and the number of perforations are considered. Those who make this division make four divisions as follows: (1) large low perforations—probably the least dangerous of all, (2) small perforations high up which are probably the most dangerous of all as drainage is poor and discharge is apt to be foul and offensive and—if long continued—to be complicated by granulations or necrosis or other bony changes, (3) peripheral perforations are considered to be an indication of necrosis of the bony canal not far from the drum membrane, (4) multiple perforations are an indication of tubercular origin or—if near osicles—necrosis of them. The fifth, which I am adding, is, in my opinion, the most important of all. (5) Lack of proper drainage and areation through the eustachian tube, which is most often due to disease or obstruction by adenoids or tonsils, the latter of which of course are never directly obstructive, but act so indirectly. Hypertrophies and deviations are also a consideration.

This is probably not a proper classification for it would be more nearly correct to classify them all under one head and call them due to poor drainage. However, there are other contributing factors such as systemic conditions, sinus infections and diseased tonsils and adenoids. Our dental friends are sure that many of our ear conditions are due to septic conditions in the mouth and teeth.

In outlining our treatment we should take into consideration our patient's age and the length of time the ear has been discharging. Sometimes we are mistaken and a supposedly chronic ear dries up after a few treatments. Sometimes we are obliged to compromise and use second best methods instead of what we consider best. My object in choosing this subject was that I might say something of the newer forms of treatment. Formerly treatments were classified under three heads as follows: (1) local, (2) intratympanic operations, (3) the so-called radical mastoid operation. I am adding a fourth. Electrotherapy deserves a place or trial before the radical operation is done. I personally would want it tried before I would consent to a radical.

Treatment under the first heading is so well known and varies so much that it would be a waste of time for me to attempt to suggest to you distinguished gentlemen any additional treatment. I confess to you that I have nothing new or startling in the way of local treatment of this common

*Read before the Section on Eye, Ear, Nose and Throat, Annual Meeting, Oklahoma State Medical Association, Tulsa, May, 1928.

condition. However, I so often sit in meetings and wish that you successful men would tell us more of your ordinary routine for treatment of every-day diseases, and for that reason I am going to mention some very ordinary measures in my routine and hope that by so doing I may induce at least some of you to do the same in your discussion. The first thing that I do in these cases is to see that the hole in the drum membrane is large and low enough for good drainage and, if it is not, make it so. Secondly, I set about to secure the proper drainage through the eustachian tube. I do not think that douching is good or safe treatment for the patient to use at home. I find that boric acid will dry up many cases but is liable to cake if blown into the ear too often. It also frequently causes excessive granulations to appear and these in turn must be removed or destroyed. The gauze is helpful provided the discharge is fluid and care is taken that we do not pack in a manner to be obstructive to drainage. It should be left off as soon as the discharge becomes albuminous and ropy for at this stage it surely becomes obstructive and does harm. Cleaning with a cotton applicator and some disinfectant (alcohol, formalin and cyanide of mercury in water) is my usual method. Then, I unhesitatingly force a solution of acri violet through the middle ear and eustachian tube into the nasopharynx.

Most drops do little good unless the middle ear is thoroughly emptied by suction and cleansed before using. No doubt some of the newer drugs do more good than our old time phenol-glycerin. Ether treatment has not proven effective in my hands and is painful.

Intratympanic operations we do not do often enough probably because they seem oldtimey, but I believe we are coming back to them and rightly so.

Radical operations should be done only after we have failed with all other measures as such operations mean the destruction of the ear. They will be less frequently used as more of us become familiar with the electro-therapeutic measures which I am adding under the fourth classification.

Zinc ionization is not suitable to all cases and especially not in those instances where there is bony involvement or cholesteatomatous masses. Neither is it suitable for the treatment of children as it is to say the least disagreeable and they are afraid of being hurt and usually are on account of their failure to be still. I do not believe that small perforations are a contraindication to its use, nor do I believe that the effect is limited to the area covered by the solution placed in the ear. If that were true there would be no reason for using the electric current in it. The best method for this procedure is as follows: After cleansing place the ear to be treated up and fill the canal with a 1 per cent solution of zinc sulphate and place in the ear a zinc electrode insulated with a bulb tipped glass tube which should be connected with the positive pole of a galvanic battery. The negative pole should be placed in a pan of salt water, in which patient places one hand. This makes it more comfortable than a pad. The current is turned on slowly and allowed to run up to two or three milliampeers and continued for ten minutes.

Another of the newer treatments—the using of which exposes me to the classification of fadist—is the ultra-violet ray. I use a quartz rod applicator in the ear and also in the nose for its shrinking effect in the nose. The nasal applicator is insulated with a rubber tube so that only about three-fourths inch of the rod is exposed. I insert this rod into the nose as far as the opening of the eustachian tube and allow it to remain for about one minute, withdraw a short distance and allow to run for a half minute and finally, with the applicator in the front of the nose and high up, allow another half minute. I heard Dr. Harold Hays say last summer that they are using the violet ray in their clinic and that with it they are stopping these ears from discharging. He also said that it is useless to try to clear up these cases as long as there remains even small pieces of tonsils or adenoids.

A mistake we often make is to assume that the patient is perfectly well except for the local infection in the ear. We should remember that we are treating an individual, and not simply an ear.

And keep in mind that the most and best that we can do is to bring about good drainage from the ear and areation through the nose.

EVISCERATION WITH GOLD BALL IMPLANTATION*

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The reason for this contribution is that we take cognizance of a superior surgical technic which should, in the majority of instances, replace enucleation, a quite unsatisfactory operation when considered as to its cosmetic, and, hence, as to its economic results.

The enucleation of the eye is a rapidly and rudely performed procedure, and generally gives the impression that the sole aim of the operator is to get the offending member out. The muscles attached to the eye are cut, the optic nerve is severed, the eye delivered and hemorrhage controlled by pressure—this nonesthetic and purely mechanical procedure is the accepted performance, and it constitutes the operation of enucleation. Any nicety of technic aimed at obviating disfigurement is very generally ignored.

When the prothesis is inserted, following this crude surgical procedure, three highly unsatisfactory conditions, to say the very least, are almost surely present. We have an artificial eye sunken deeply into the socket, with a consequent lack of symmetry with the natural eye; we have sagging lids, and we have an eye staring rigidly and vacantly into space. Injury to the sympathetic incident to the operation of enucleation has been considered as a probable factor to account for these unsatisfactory conditions; but, in addition, there are primarily some purely mechanical factors worthy of note: (a) the deeply sunken artificial eye can be attributed to the practically empty socket resulting from enucleation; (b) the sagging lids to the disturbance in relation between tension of, and pressure against, the palperbral muscles caused by the sunken prothesis, and (c) the rigidly staring eye results from the severed recti muscles.

These deformities can be avoided. Hence we can improve upon what is undoubtedly a faulty surgical procedure, however skillfully it is performed.

Enucleation may be compulsory in malignant conditions of the eye, or justifiable, as in advanced age, where appearance count for little as against the necessity for a rapidly performed operation; but it is not justifiable in any one other single condition.

The laudable efforts of our government to rehabilitate the injured and disfigured soldier, and to restore him to a condition where he can most readily earn his own livelihood, should teach the lesson that the removal of the eye in civil practice should not be considered on a parallel with the emergency operation of the battle field that so often makes necessary later plastic treatment.

The civilian surgeon also is today removing postoperative disfigurements solely with the view of a cosmetic improvement; and much of this plastic surgery would not be necessary had the patient been rationally handled in the first place. Yet, with respect to eye surgery, or to that part of it under consideration, very little is being done to preserve a normal appearance; and we must admit that a good appearance has no inconsiderable economic value.

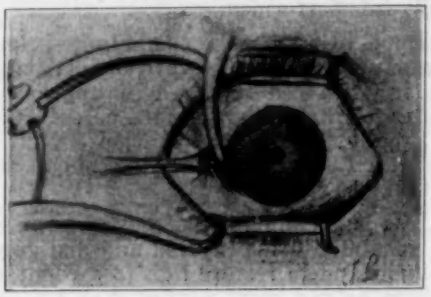
Postoperative appearances are to be shown every consideration, and we must use the utmost care in preventing any avoidable disfigurement consistent with the welfare of the patient. Evisceration with gold ball implantation according to Dimitry is advocated for the reason that it practically obviates injury to the sympathetic nerve, conserves the normal movements of the eye, provides a foundation for the prothesis, and hence a filled-in socket, all tending to prevent disfigurement, and in that it exposes the patient to no greater risk from sympathetic ophtalmia than does enucleation.

The advocated operation is an evisceration of the sclera with the removal of a section of it *posteriorly* including a severance of the optic nerve. A gold ball is inserted within the sclera, and the anterior opening is closed. The posterior opening is not closed. This latter is very essential, and a little thought should convince one of its merits.

The procedure begins as in an evisceration; that is, the conjunctiva is first un-

*Read before the Section on Eye, Ear, Nose and Throat, Annual Meeting, Oklahoma State Medical Association, Tulsa, May, 1928.

dermined, and the anterior aspect of the globe is resected. The point of resection



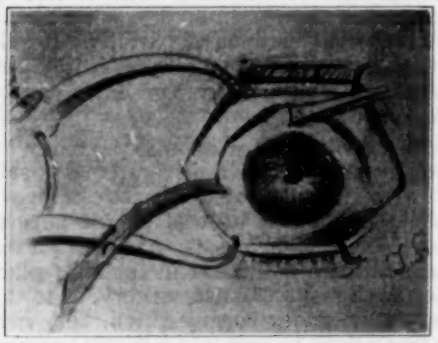


FIG. 1 AND 2.

is about 2 mm. posterior to the corneoscleral junction. The contents of the globe are removed, and any possible slight hemorrhage is easily controlled. A section is made in the posterior aspect of the sclera from within, and, at the same time, the optic nerve is severed.

FIG. 3.

This latter procedure is quite readily carried out by puncturing the sclera with a Graefe knife, and with a pair of curved scissors cutting in a circle around the insertion of the optic nerve, thus severing it from the sclera. The detached portion of the sclera with its attached portion of the nerve are then removed after section of the latter. The long ciliary nerves may also be cut if desired.

The sclera is now turned from within outward, evaginated, and every vestige of choroidal tissue is removed. It is then returned to its normal position, invaginated, and two small triangular sections of it removed at both sides of the anterior window and in such position that a vertical line bisecting the latter will also bisect the triangular openings. The gold ball is then inserted, and the sclera is sutured vertically over its anterior surface. The

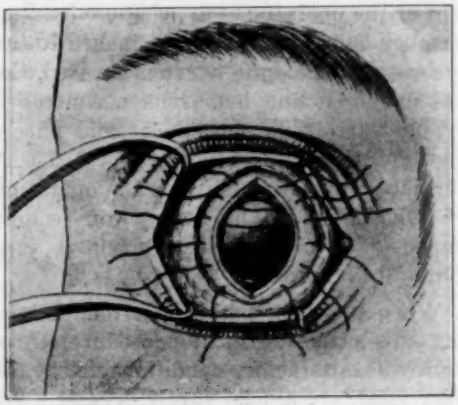


FIG. 4.

conjunctiva is sutured horizontally over the sclera. The operation is now complete.

The triangular openings are for the purpose of securing a more snug fit of the sclera over the ball. The recti muscles, having been left attached to the sclera, retain their ability to function; so that, what remains of the eye, with its implanted gold ball, is capable of practically the same scope of movement as was the eye before operation.

Considerable reaction and swelling usually occurs after this operation, thus subjecting the tissues to great strain. This edema encourages a loosening of the sutures. To combat this tendency Fox uses what he calls a "conformer", made either of glass or gold plated silver. It is shaped to the contour of the eye, is either solid or perforated in its center, and acts as a splint to support the sutured scleral and conjunctival wounds. I have used the con-

former in a number of cases and can endorse Fox's claims.

A perfectly dry, antiseptic dressing is preferred. A pressure bandage is applied over both eyes to support the sutured wounds and promote immobility of the operated eye. It should remain in position for about two days and may be slightly loosened if the pain and swelling are great. It may be necessary to give anodynes and the patient should be kept quietly in bed for the first few days. The stay of the patient in hospital is somewhat longer than after an enucleation. The bandage may be removed in about two days and the conformer in three or four days, but the stitch should not be removed for about a week as the conjunctival wound is apt to gape if the sutures are removed too soon.

The questions of sympathetic ophthalmia and extrusion of the gold ball will now be considered. The two most widely accepted hypotheses to account for sympathetic iridocyclitis are perhaps that of Leber and Deutschmann, and that of Rimpler.

If the former theory is correct, and sympathetic ophthalmia is due to the infectious virus reaching the sound eye by way of the lymphatics of the optic nerve unless the retained sclera is the focus of the infection, which is extremely improbable, the advocated operation protects from this untoward eventuality to the same extent as does enucleation, for the optic nerve is severed.

Those who are partial to the cilioneural theory of Rimpler, that an irritation of the ciliary nerves of the eye first affected induces a susceptibility to the disease in the sound eye, will find it not difficult to sever these nerves at the same time the optic nerve is severed.

The erroneous impression which prevails is that sympathetic ophthalmia is likely to occur after this operation. This notion is incorrect for, although it is not denied that sympathetic ophthalmia may follow this operation, it is frequently difficult to prove that the operation caused the disease since it might have followed some other form of enucleation. Fox (Diseases of the Eye, 1910) had done four hundred and twenty-five gold ball operations in fifteen years and had never had a case of sympathetic ophthalmia.

The idea prevails that very few balls remain in situ, but this is only true where the operation is poorly performed; if done in accordance with the directions set forth here, very few balls will be expelled. If balls are expelled, it occurs in a short time after the operation, although instance of extrusion some years after are on record. If even a small opening occurs at the line of suture, exposing the ball, its total expulsion is inevitable.

An unfortunate blunder is to select an overly large ball thinking thereby to secure an increased cosmetic effect. The sclera contracts a great deal after this operation and if a ball is selected which is a "tight fit" the wound will be quite likely to open and permit its escape. The ball should be so small that the sclera wrinkles over it instead of fitting tightly. If a small ball be selected and plenty of delicate but strong sutures are used, which are placed far back in the sclera, it will be exceedingly unlikely to escape.

Fat is quickly absorbed, as is the eye of the rabbit, although not so rapidly. Paraffine and dental wax have given the poorest results, for they, and particularly the latter, cause a great deal of irritation. Cartilage, barring the great difficulty in procuring pieces suitably shaped for the purpose, seemed to give rather satisfactory results. However, I can see in its use no advantage over the gold ball; in fact, rather the contrary.

In further defense of my stand, I shall quote from Allport, in the American Encyclopedia of Ophthalmology, under the caption of Choice of Methods in Eyeball Excision: "In the majority of cases this mutilating and deforming operation of enucleation is entirely unnecessary and should be relegated to obscurity, that it may make way for better, more modern and more humane surgical procedures."

In conclusion, the advantages of the operation may be summed up as follows:

1. It furnishes a filled-in socket with its several advantages; a firm seat for the prothesis; an absence of sagging lids, and hence, a normal lacrimal secretion and drainage.

2. It evidently does not interfere with a natural face development in the youth.

3. It leaves the recti muscles undisturbed and with an unimpaired power to function.

4. The posterior window permits of the easy severance of the optic nerve; it permits of ready absorption of hemorrhages

and exudates, and obviates extrusion of the gold ball.

I have done about fifteen of these operations with uniformly good results.

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ASEPTIC CAVERNOUS SINUS THROMBOSIS*

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Two years ago, before this section of the Oklahoma State Medical Association, the writer discussed "Lateral Sinus Thrombosis." The paper was presented without manuscript and a brief was not prepared so the discussion was not received for publication by the State Medical Association Journal. At that time, after several years of observation, we endeavored to present our conclusions which were, we believe, not generally accepted. Namely: (a) All lateral sinus thrombi are aseptic during the early formative period. (b) Lateral sinus thrombosis does not come as the result of infecting micro-organisms passing directly into the lateral sinus or from an infected embolus entering the sinus by way of the superior petrosal or some other communicating vessel.

We endeavored to show that a thrombus was the result, rather, of entension by contiguity of tissue. Following inflammatory processes within the temporal bone due to infection, the membranous sinus becomes surrounded by inflammatory tissue and frequently lies in a pool of pus. As a result of this contiguous inflammation the vein becomes involved, causing the intima of the vessel to throw out a sticky exudate which picks up the red and white blood corpuscles and other blood contents, forming an aseptic thrombus. If the pus is not removed by prompt operation the vessel walls soon soften and the surrounding bacteria readily penetrate them and we get an infected thrombus so that our patient presents a new syndrome and the blood picture is that of bacteremia. If at this time the case is still left unoperated the infected thrombus begins to break down and your patient develops a third distinct stage and the symptoms and blood picture are those of septicemia.

We endeavored to urge the importance of recognizing and operating these cases during the first stage, namely that of the aseptic thrombus, when we may expect practically 100 per cent of recoveries. If we do not recognize this condition early, but operate during the second stage, namely that of bacteremia, we may expect only 50 per cent of recoveries, whereas if we delay operation until the third stage or that of septicemia our mortality is practically 100 per cent. As an aid to diagnosis, daily blood cultures should be made in all cases of mastoiditis.

Those of you who have studied thrombi carefully in their gross appearance must have noted them occasionally during this aseptic stage. They are clean cut, well moulded structures very firm and adherent to the inner wall of the vessel, almost like an outgrowth from the intima. They are red, dark pink or pale pink, dependent upon the proportions of the white to the red blood corpuscles they contain. Microscopical examination does not reveal any bacteria in these thrombi during their formative stage.

Unfortunately we see all too few lateral sinus thrombi at this stage because of our tendency to delay operation, or if we do operate a mastoid we so often fail to expose the lateral sinus and hence the life of the patient may be seriously jeopardized if not wholly sacrificed.

As a result of the studies which led to the above discussion we were able to make our deductions in the interesting case which we wish at this time to report and which at our June, 1927 staff meeting at the University Hospital we ventured to call an "Aseptic Cavernous Sinus Thrombosis." More than four months later, in the September, 1927, number of *The Archives of Otolaryngology*, the official Ear, Eye, Nose and Throat Journal of the American Medical Association, Dr. M. C. Myerson of New York City, presented a similar case which he calls an "Aseptic Cavernous Sinus Thrombosis" and states that he is "not certain a case has ever before been recorded in which the process was aseptic apparently from its inception."

On May 3, 1927, the following case presented itself at the University Hospital.

*Read before the Section on Eye, Ear, Nose and Throat, Annual Meeting, Oklahoma State Medical Association, Tulsa, May 17, 18, 19, 1928.

R. S., colored, male, school boy, age 15 years, apparently perfectly well until one week prior to this date when he began to have some pain with a very rapid swelling and effusion of the left eye and orbit. He complained of no other symptoms.

The observations of the admitting physician, Dr. R. Brady, were "swelling of tissues about the left eye and lids, redness of conjunctiva and purulent discharge from the eye."

Impressions of admitting physician as to the nature of the case were cellulitis of the left orbit.

The history and physical findings taken by Dr. E. Veatch were entirely negative except as related above, namely a rapidly swelling and inflamed left eye beginning seven days prior to admission into the hospital.

NO. 1.
Photo taken one week after entering the hospital. Note the marked chemosis in the left eye.

The case was referred to the ophthalmological service and Dr. E. S. Ferguson's consultation report upon the case was as follows:

Right eye: About normal in appearance, media all clear and fundus shows no pathology. There may be slight exophthalmos.

Left eye: Marked exophthalmos with conjunctival edema. The appearance suggests cellulitis but there is a complete absence of pain which would discount this opinion. Media clear, nerve head very indistinct with probably some exudate at its center presenting slight choked appearance. Unable to say what is causing disturbance without further study. May be cavernous but history hardly bears it out. Cellulitis from an infection should be more acute. Intracranial pressure of some sort must be considered. Advise close observation.

Dr. L. M. Westfall on service in the ophthalmological department called for a nose and throat consultation with special reference to a possible infection from the accessory nasal sinuses.

Dr. J. C. Macdonald of the Rhinological department, who was assisting me at this time in my service at the University Hospital, made the following observations May 7, 1927:

Right eye: Some exophthalmos, conjunctiva congested and edematous, movement of eyeball somewhat limited. Vision apparently good.

Left eye: Marked exophthalmos, eyeball pushed forward and rotated downward, only slightly movable.

The X-ray shows fluid in frontal sinus, but as the sinus lights up well upon transillumination, this is to be questioned.

Impressions: Orbital cellulitis, bilateral. Dr. Macdonald asks an opportunity for further study.

On May 9, 1927, he makes the following record: Tissues of nose shrunken with adrenalin. No pus is seen in either nasal cavity.

Dr. Macdonald kindly asked me to see the case, which I did on May 11, 1927. At this time we made the following notes:

Condition and appearance of patient remains as already described. This is probably a *Cavernous Sinus Thrombosis.* Patient examined rather hurriedly. Extension from the nose has evidently been eliminated. It is probably a low grade mild type of infection involving the cavernous

sinus. We think the continued careful observation of the case important with as near as possible a positive elimination of the accessory nasal sinuses.

On June 8, 1927, we made the following notation regarding the case: The condition of the fundi are not changed since first seen, which, by the way, evidently had shown marked engorgement of both discs except that the veins may be more swollen and the arteries, especially in the left eye, very indistinct. Both eyes still markedly bulging but the exophthalmos and chemosis is much more extreme in the left eye. This we contend is probably due to a low grade infection of the left sphenoidal sinus, causing an *Aseptic Thrombus of the Cavernous Sinus*. This may become septic at any time presenting serious complications or it may clear up by absorption.

NO. 2.
Photo taken about two weeks after entering the hospital. Note conjunctiva protruding below margin of closed lids of left eye.

The outstanding features in this case and those upon which our judgment in diagnosis of aseptic cavernous sinus thrombosis was based, were:

The history of a rapidly developing bilateral exophthalmos more marked in this instance in the left eye, attended with little pain but marked redness of the conjunctiva with engorgement and chemosis.

Evidence of intracranial pressure as shown by a slow, full pulse, 52 to 56, and the enormously engorged veins in both fundi indicating an obstruction to the venous circulation in both eyes.

Total absence of fever or other signs of sepsis, the red and white blood count remaining practically normal throughout according to the laboratory reports.

These cases evidently tend to recover without surgical interference. Dr. Myerson's case recovered after seven months.

It is our opinion, however, that if the intracranial pressure continues pronounced as evidenced by the slow, heavy pulse and the intense engorgement of the retinal veins, a subtemporal decompression should by all means be done to lessen the danger of blindness from intracranial pressure upon the optic nerve. J. V. Paterson, F.R.C.S. of the Royal Infirmary, Edinburgh, in a recent article on "Optic Neuritis," says, "I would support the view that cases of increased intracranial pressure with changes at the disc should be operated upon early so that the patient may have the best chance of retaining vision. A. J. Ballantyne, M.D., of the Western Infirmary of Glasgow, Scotland, and Henning Ronne, M.D., of Copenhagen, also made the same claims in recent published articles.

As consultant, we recommended that a sub temporal decompression be done in this case. The ophthalmologist in charge concurred in this opinion and referred the case to the surgical department. Dr. LeRoy Long, who was on service, did this operation on May 18, 1927. The case was fully recovered in seven months as the accompanying picture will show.

Dr. Myerson's case recovered, apparently, without loss of sight and was not operated. The doctor does not state, however, whether his patient showed any evidence of intracranial pressure. He does not tell us the character of the pulse nor the condition of the fundi. Several of our best authorities state that when the pulse remains above 55 or lower due to evident intracranial pressure and the optic disc shows marked disturbance, a subtemporal decompression should always be done. We are inclined to believe that such an opera-

tion had much better to be advised than to risk the possibility of partial or complete blindness.

NO. 3.

Photo taken about eight months after first entering the hospital. Note perfect normal appearance of both eyes.

How do we account for such a case as this? We believe the etiology as based upon our discussion of thrombosis two years ago will explain these conditions. This patient undoubtedly developed first a mild infection of the sphenoid, sufficient to cause an inflammation of the contiguous cavernous sinus. The intima of the cavernous sinus throwing out sufficient exudate to pick up the red and white blood cells and blood platelets to produce a thrombus. Fortunately the sphenoidal sinus has a rather large opening for natural drainage, and in case of infection always tends to a spontaneous cure. Resolution took place, therefore, naturally in the sphenoidal sinus before the infection had broken down the membranous walls of the cavernous sinus to permit the bacteria to infect the thrombus. Such good fortune is quite impossible in lateral sinus thrombosis from purulent mastoiditis, but should be accomplished quite readily in a cavernous sinus thrombosis through the natural drainage of the sphenoidal sinus.

From our observation of this case we believe, however, that the safety of these patients could be greatly increased by promptly using some intranasal treatment that would favor natural drainage of the accessory nasal sinuses, such as keeping the nasal mucous membrane shrunken with a 1 per cent solution of ephedrin or one to 1000 adrenalin chloride, followed by a gentle and persistant intranasal application of a hot alkaline douche.

The pictures which we present with this case tell us more at a glance than pages of descriptive writing can possibly do, especially as to the appearance of a patient with cavernous sinus thrombosis.

We wish to express our thanks to Dr. L. M. Westfall on service in the ophthalmological department and Dr. J. C. Macdonald on the cinicial service in rhinology and otolaryngology for having the laboratory department take these excellent photographs. X-ray and all other laboratory findings remained practically negative throughout the entire illness. The temperature remained nearly normal, wheras the pulse, prior to the decompression operation, was often below 55 per minute.

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THE TRANSPORT MECHANISM OF THE ALIMENTARY TRACT AND ITS SIGNIFICANCE IN CONSTIPATION AND OTHER INTESTINAL DISTURBANCES*

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None of the basic facts in the science of medicine are more confused than are those about the visceral nervous system, and particularly as it concerns the gastro-intestinal tract. Depending upon the school to which he adheres the physiologist talks very glibly about the autonomic nervous system, the sympathetic, the para-sympathetic, and the vago-sympathetic, and not so long ago we heard of the pneumogastric system and more recently it is the visceral or vegetative system.

To me these various descriptive terms indicate that our knowledge of the physiology of the nerves to the viscera is imperfect and therefore confused. When we look for the reason for this state of affairs it seems to have resulted from the failure of the experimental physiologists: (1) to correlate their physiological facts, and (2) to take a complete survey of the field. They have studied it in a piecemeal-like manner by doing a piece of research work first on one part, and later on another, and then drawing their conclusions about the whole system by considering only the individual part on which the work was done instead of taking into consideration the interrelation of other parts.

As an example of their method of study let us take the work on the salivary glands. One will study the sub-maxillary, another the parotid, and the third the sublingual. Each worker will draw different conclusions with reference to the nervous mechanisms when as a mater of fact they are identical not only functionally but anatomically as well.

*Read before the Section on Urology and Syphilology, Annual Meeting, Oklahoma State Medical Association, Tulsa, May, 1928.

The same is true for the thyroid innervation, the pancreas, liver suprarenals, etc.

From the evolutionary view point the visceral nervous system is a survival of the old ganglionic chain systems found in the earthworm, bees and all lower forms and in them the functions are identical for different segments.

So we should regard our visceral systems as an archaic mechanism which has become enveloped by the so called somatic or voluntary system which serves as a house for the former, and the old mechanism works in the same primitive way in its new home that it did in the old one.

GENERAL PLAN OF VISCERAL ENNERVATION

We shall now endeavor to present the general plan of structure of the visceral nerve mechanism and point out the uniformity of its reactions.

When the visceral nervous system is analyzed on its motor side it is seen to have two phases. One of which is *motor* or a contracting phase, the other an *inhibitory* or a relaxing phase.

A study of the structure of the system reveals this fundamental rule, namely, the nerve fibers which cause contraction of visceral, or involuntary muscle originate within the cerebro-spinal axis and relay in ganglia located in or on the viscus ennervated. Those fibers which cause the relaxation or inhibition, originate within the cerebrospinal axis and relay in ganglia peripheral to or some distance from the viscus ennervated.

These statements are true for all the visceral nervous system whether it be the vagus, or autonomic or sympathetic, or parasympathetic. There seems to be an exception in the case of the vagus to the heart, but the heart is in a category of its own because its musculature partakes of the nature of both involuntary and voluntary muscles, and there is some good evidence that the vagus nerve is not purely a visceral nerve but is in part voluntary. With this exception noted we are prepared to show that the visceral vagus motor is not in any sense different from the sympathetic motor. The confusion has resulted from morphological changes incident to the development of or the superposition

of the voluntary nervous system on the old archaic visceral mechanism.

IDENTITY OF VAGUS AND SYMPATHETIC NERVE FUNCTION

So let us point out the identity between the vagus and sympathetic or autonomic.

Located in the brain stem and spinal cord is a column of gray substance the cells of which form the center for the endings and origin of the visceral nerve fibers. In the medulla of the brain-stem these cells constitute the vagal, salivary, and other nuclei. In the spinal cord they constitute the nuclei of Stilling, and Clark's column. (*Fig. 1*).

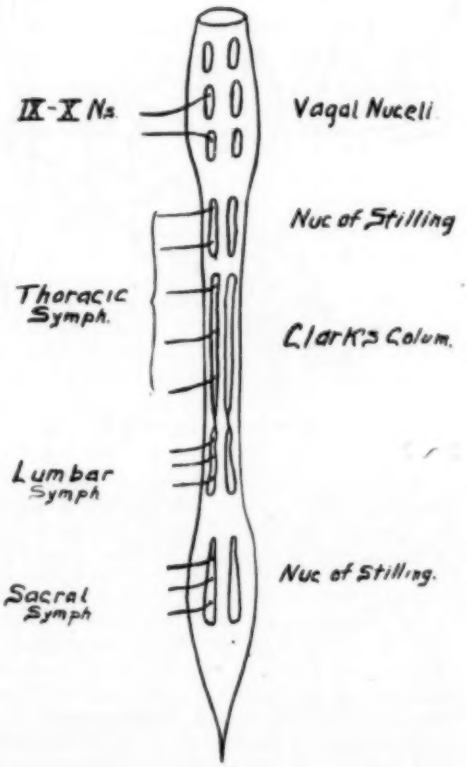


Fig 1.

The sensory or afferent fibers to these enters are identical in extent with the somatic sensory neurones. That is, the sensory visceral fiber arises in the viscus, runs to and through the ganglia including the dorsal spinal ganglion into the central nervous system. (*Fig. 2*).

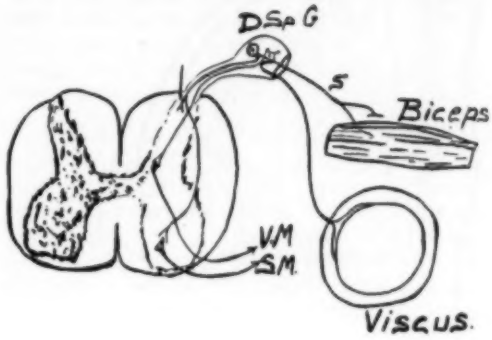


Fig 2.

The outgoing motor fibers arise from the central cell body and if it is motor, i.e., causes contraction of visceral musculature it runs to the viscus and relays in the intrinsic ganglia; if it is inhibitory, i.e., causes relaxation of visceral musculature, it relays in a peripheral ganglion some distance from the viscus to which it is destined. (*Fig. 3*).

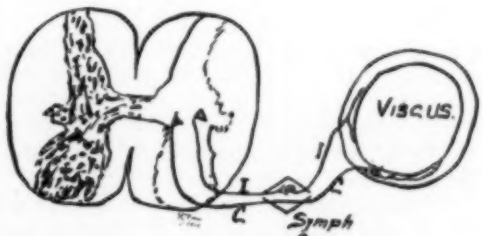


Fig. 3.

The upper part of the alimentary tract is supplied by the vagus and sympathetic nerves. The lower part by the autonomic and sympathetic but as seen from our previous statements, these not only function in identical manner but are also identical in structure. The differences, being apparent rather than real. By reference to the chart (*fig. 4*) it is noted that the motor

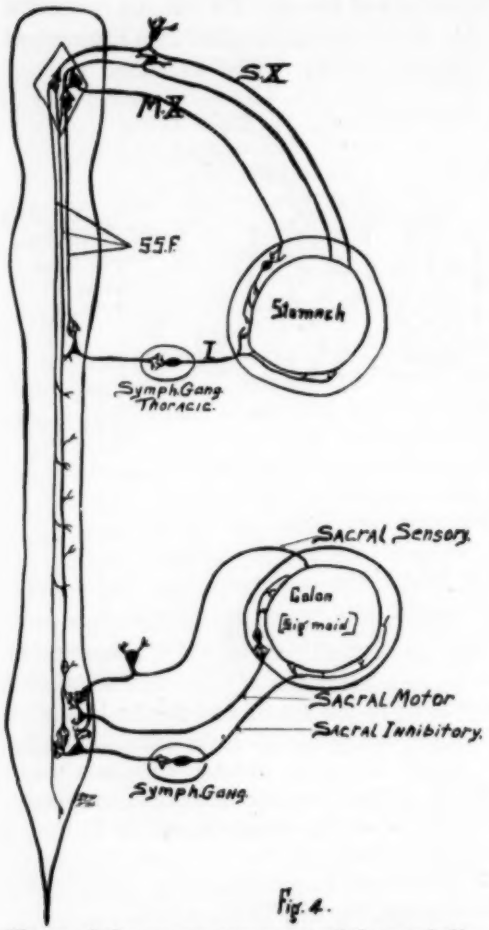


Fig. 4.

fibers of the vagus come out of the medulla and relay in the plexus of Auerbach and Meissner in the viscus. The inhibitory fibers come out of the thoracic cord relay in the sympathetic ganglia and then terminate in the viscus.

In the sacral sympathetic it is noted that the motor fiber comes out of the cord and relays in the plexus of Auerbach and Meissner. The inhibitory fibers come out of the cord and relay in the peripheral ganglion and then terminate in the viscus. Are not these courses identical for the vago-sympathetic and the sacral sympathetic?

CENTRAL CONNECTIONS OF VAGUS AND SYMPATHETIC

But you may say that their central connections differ. Let us analyze it. A bundle of association fibers called the solitary and spinal solitary fasciculus is present in the medulla and cord which connects the vagal center of the medulla and the sympathetic in the cord as represented in the chart. (*Fig. 5*).

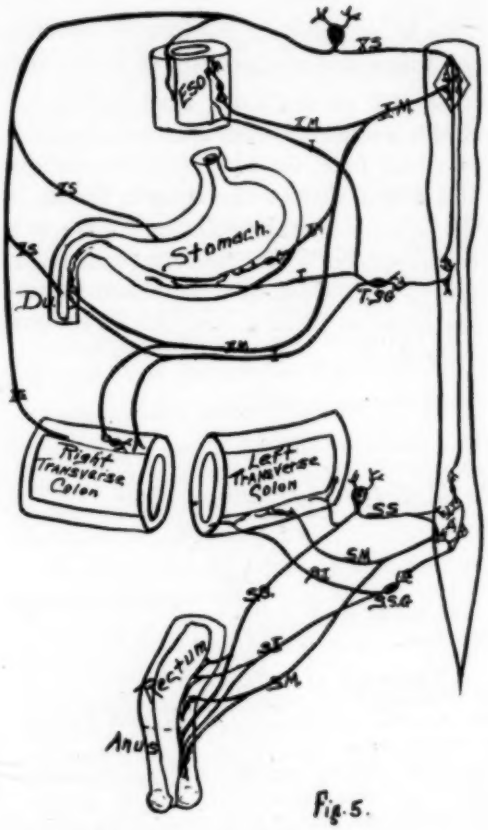
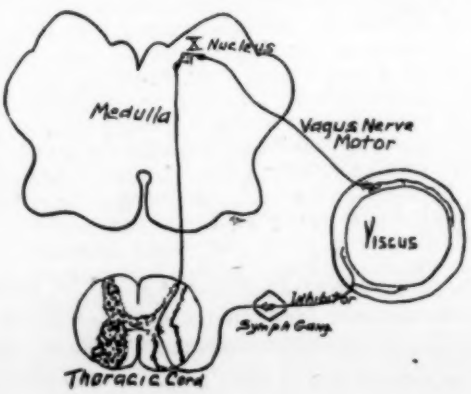


Fig. 5.

In the lumbo-sacral region similar intraspinal fibers exist which, while shorter, connect the motor and inhibitory cells of the sacral sympathetic (*figs. 5 and 6*).



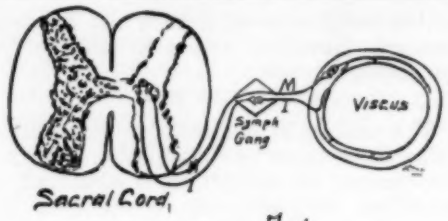


Fig. 6

This demonstrates quite clearly, therefore, that the mechanisms to the upper and lower portions of the alimentary tract are identical in structure as well as in function.

UNIVERSALITY OF THE MECHANISM

The mechanism above described is the same whether we discuss the blood vessels (vaso-constriction and vaso-dilatation), the glands, the lungs, the bladder, the uterus or the alimentary tract.

THE ALIMENTARY TRACT

So let us confine our attention to the neuro-muscular mechanism of the alimentary tract. In the consideration of the digestive tract we should not lose sight of the fact that one of the physiological properties of visceral muscle is that of automatic and rhythmic contractility, and this may occur independently of the nerve supply but in a system of such great length as the ailmentary tract it is quite essential (1) that the contraction wave pass in a given direction, (2) that it be properly correlated, and (3) because of the differences in function of different segments of the digestive tract it is quite essential that the automaticity of the gut wall be properly regulated to subserve the function of each particular segment. For example it has been observed that the rate of passage of the gut content is about as follows: It takes food about eight seconds to travel the esophagus; some food passes from the stomach to the duodenum a few minutes after entrance; in four and one-half hours it begins to enter the cecum; in six and one-half hours it has reached the hepatic flexure; in thirty hours it is in the iliac and pelvic colons. These are the observations of Dr. A. F. Hurst on a bismuth meal observed with a fluoroscope. If the rate of its passage through the esophagus were maintained throughout it would leave the rectum in about four and one-half minutes. So that while the visceral musculature of the gut can contract automatically and rhythmically yet it must be correlated in order to permit the digestion and absorption of food.

The gut when completely severed from the central nervous system is similar to the ailmentary tract of an earthworm, whose food, moist earth, passes through in a continuous rhythmic stream. In certain pathological conditions this condition may result as in certain forms of ileus in which food passes rapidly through the bowel in an undigested state.

THE KEITH NODES AND SPHINCTERS

To bring about the correlation of the various segments with their different functions we find nerve centers located along the gut, and associated with these centers are more or less well developed sphincters which, when they close, confine the contents of the gut to a certain segment.

These nerve centers were worked out by Keith, and are associated with his name as the nodes of Keith.

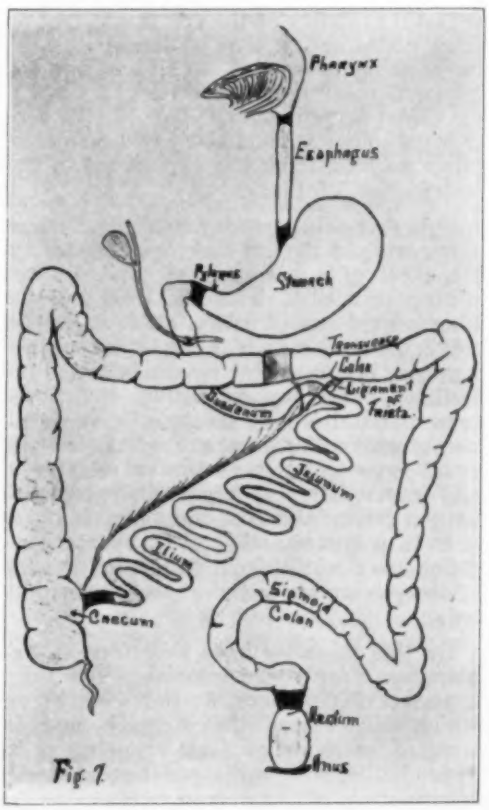


Fig. 7

By reference to the chart (*fig. 7—from Treves*) you will note that they are located at (1) the upper and (2) the lower ends of the esophagus, (3) at the junction of

the duodenum and stomach—the pylorus, (4) one just below the entrance of the bile duct, (5) at the ileocecal junction, (6) right middle third of the transverse colon, (7) at the junction of rectum and the sigmoid colon and (8) at the external anal sphincter.

These nodes are similar to the circles of irritation found in the bronchi—which are located at the branching of the bronchi and the peristaltic wave passes towards the larynx. In certain segments of the alimentary tract the contraction or peristaltic waves are directed towards the anus, in others at one time towards the anus and at other times toward the mouth.

In the esophagus, small intestine, left two-thirds of the transverse colon, and the descending colon the peristaltic wave passes towards the anus. In the stomach, ascending colon, and right third of the transverse colon they may pass either way.

The irritability of the gut is greatest at these nodes and gradually decreases until the next one is reached. To all that portion where normal reverse peristalsis occurs, the vagus nerve is distributed. Under certain pathological conditions reverse peristalsis may occur in the part distal to the distribution of the vagus.

It is from these nodes that the normal movements of the gut are regulated but in the event of a pathological condition resulting in a disturbance of their normal functioning one of three or four things may happen. A spasm at one of the sphincters may occur producing stasis of the intestinal contents, constipation, etc., a reverse peristalsis may result, or a combination of spasm and reverse peristalsis as in vomiting with pylorospasm, or relaxation and immobility may occur as in gas distention from failure of the motor impulse to be transmitted and finally a spastic condition may result from failure of the inhibitory impulses to be properly transmitted.

On this basis we have therefore an explanation for regurgitation, vomiting, spasm of the pylorus, duodenal spasm in which bile enters the stomach and is vomited, stercoral or fecal vomiting as in appendicitis, tympanitis, spastic and atonic constipation.

I might mention in passing that the node in the duodenum is often the cause of more mischief than we suspect. It is possible for a spasm of it associated with a spasm of the pylorus to dam back the bile and produce jaundice, and also involve the pancreas.

CONSTIPATION

The relation of the intestinal neuro-muscular mechanism to constipation is rather impressive. Constipation is essentially a condition in which the bowel does not properly empty. The *term* constipation is a relative one whereas the *condition* spoken of as constipation is very variable.

The types of constipation recognized are based upon the reactions of the visceral nervous mechanism of the lower bowel. With an understanding of this mechanism and a knowledge of how its normal function may be deranged we are led to expect constipation of the following types: (1) Atonic; (2) Spastic; (3) Atonic-spastic; (4) Spastic-spastic.

ATONIC

In the atonic type the following conditions may be present either singly or in combination. (a) The bowel musculature may be weakened as in asthenic states after a prolonged illness, as in typhoid fever. (b) The irritability of the central nervous system, (the cord), the reflexes or the ganglia may be below normal.

This condition may be suspected in patients who are in an exhausted condition but the final diagnosis rests upon an examination of the stool. When the bowel empties there results a fairly long stool of large diameter and the diameter is the significant fact in confirming the diagnosis.

SPASTIC

The spastic type is due to either an over acting musculature which is hypertonic or irritated, or over excitability of the central nervous system (the cord) the reflexes or the ganglia . This type of constipation is to be suspected in high strung, highly nervous individuals. The diagnosis is again confirmed by an examination of the stool which may be fairly long but of small diameter. The diameter again being the significant fact in confirming the diagnosis.

ATONIC-SPASTIC AND SPASTIC-SPASTIC

The other two types, the atonic-spastic and spastic-spastic, are less frequently discovered. Patients who have either the true atonic or true spastic conditions will complain of constipation, but those with the latter types will usually tell the physician that their bowels move alright, but

upon careful inquiry you may discover this: (1) that the patient's bowels do move every day, maybe more than once, but further inquiry discloses that the stool is quite short, maybe one and one-half to four inches in length in the atonic-spastic type and of large diameter, or it is short and may consist of small nodules and is of small diameter in the spastic-spastic type.

The condition underlying these two latter types is this—in the *atonic-spastic* type the gut wall is relaxed, weakened or atonic, and the sphincteric mechanism is irritable or hypertonic, so that the sphincter at the junction of the colon and rectum relax, the rectum fills with feces and then there is a spastic closure at the rectal sigmoid juncture and the short segment of fecal material is enclosed in the rectum between the sigmoid sphincter and the external anal sphincter. When the anal muscle relaxes the short stool of large diameter is expelled, but only the rectum and not the bowel is emptied. The large diameter is due to the atonic gut wall, and the shortness to the irritation of the sphincter which segments off the stool.

In the *spastic-spastic* condition the underlying cause is a spastic bowel and rectum wall combined with irritable sphincters. So that the spastic rectum may have a slender narrow stool forced into it, and a closure of the sphincters results. When there is an emptying of the rectum the stool is short, and consists of small nodules or is of small diameter. In both of these latter conditions the patients will say that they have bowel movements, and they have but it is not a normal emptying.

TREATMENT OF CONSTIPATION

With a knowledge of the nerve mechanism a basis is found for the medical treatment of these conditions. Since the vagus nerve is motor to the upper part of the gut as far down as the junction of the right and middle thirds of the transverse colon, a spasm can be relieved by a drug which will depress or paralyze the vagal nerve endings or, which will stimulate the inhibitory mechanism. In atropine we have a drug which will depress the vagus. So that this drug may be used for the true spastic type of constipation, where there is a vagotonia.

If there is a spasticity due to a hypo-sympatheticotonia due to lessened irritability of the relaxor mechanism of the sympathetic, then hydrochinone, ephedrine or even adrenalin may be used. In the atonic condition physostigmine may be used to stimulate the vagus in hypovagotonia.

In the event that the condition of atonic constipation is due to a lack of the true muscular irritability pituitrin or ergot may be used. If the condition of atony results from lowered irritability of the cord centers, strychnine may be used.

The atonic-spastic and spastic-spastic types may be benefitted by the drug therapy recommended above but lend themselves more readily to topical treatment. A few ounces of magnesium sulphate or olive oil placed in the rectum and retained over night are quite valuable in relieving the spasticity. Quite frequently local conditions such as haemorrhoids, ulcers, fistulae, etc., call for treatment in order to relieve these conditions.

DIET

The diet is important as an aggravating factor and in treatment. In the atonic type a bulky, stimulating fodder vegetable type of diet is indicated. The spastic condition calls for a non-irritating diet of small bulk and high digestibility and absorbability. The atonic spastic and spastic-spastic types are so often due to a local focus that the dietetic factor is not so important a consideration although it should be given attention.

THERAPEUTIC RESULTS

That a therapeutics founded upon this basis is rational has been confirmed by my own experience in my general practice and in my medical service in Eloise Hospital. C. E. Haines of New York state, concluding a paper, states that tincture of belladonna permanently relieves epigastric distress which, as revealed by the roentgen ray, is due to a contracture of the pyloric quarter of the stomach and concludes that no exploratory incision should be made on the basis of a deformed stomach as shown by the X-ray until the patient has been brought under the influence of belladonna.

FIBRILLATING STOMACH—DIGITALIS

F. Hamburger of Munich, emphasizes the efficiency of subcutaneous injections of 0.1 mgm. of atropin in pylorospasm of infants.

A New York physician, in an article, the journal in which it occurred I am unable to locate, recites a long series of cases of jaundice and gall stone colic which or-

dinarily would have been operated upon as clearing up on the administration of belladonna, and I have had the same experience. Cohen of Vienna, recommends it for spastic constipation. In fact in his text book on diseases of the gastro-intestinal tract he speaks of atonic and spastic constipation as I have and recommends similar treatment.

SUMMARY:

We have endeavored to show:

1. That at definite locations along the gastro-intestinal tract there are nerve centers (Nodes of Keith) from which the impulses regulating the gastro-intestinal movements take origin.

2. That due to disturbances of these nodes, abnormal motor activity may result such as vomiting, intestinal stasis, spasm, spastic constipation, atonic constipation, etc.

3. A knowledge of the neuro-muscular mechanism involved in motor disturbances of the ailmentary tract forms a rational basis for the therapeutic treatment of the conditions resulting, e.g., to relax a spasm by local action on the musculature magnesium sulphate may be used; to relax the spasm by action on the intrinsic ganglia atropin may be used; or by action on the sympathetic ganglia adrenalin may be used. To tone up the neuro-muscular mechanism in atonic states pituitrin and ergot may be used for local action on the muscles; for stimulation of the motor nerves in atonic states physostigmin may be used; and strychnine may be used in lowered reflex irritability for its stimulating effect on the spinal cord mechanism.

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AN ABSTRACT OF THE WORK DONE WITH TOXOID AND ANATOXINE RAMON IN DIPHTHERIA IMMUNIZATION*

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Historical and Definition: Again science claims to have discovered a simpler and less painful method. This time it is the announcement of the use of diphtheria toxoid, anatoxine Ramon for diphtheria immunization.

Diphtheria can be eliminated in the susceptible childhood population only by extensive immunization. It has been estimated that 75 per cent of the "susceptible" or pre-school age children among whom the highest fatalities occur, must be immunized for the adequate control of this disease.

About 1921 the term *anatoxine* was first applied by Ramon of the Pasteur Institute in Paris to a specially prepared diphtheria toxin to be used in the place of toxin-antitoxin in immunizing children against diphtheria. About the same time that Ramon did his work in Paris, Glenny, Hopkins and their collaborators worked on the same problem in England. The final product of their efforts was diphtheria toxoid and anatoxine Ramon.

Toxoid is diphtheria toxin whose toxicity is destroyed by the use of formalin or sodium palmitate and protracted heating for 15 to 20 days in a water bath at 38 deg. C. The formalin and palmitate do not affect the power of the toxin to stimulate the production of antibodies.

In England the immunizing value of toxoid has been established by carefully controlled animal experimentation, while on the continent in Paris and Berlin anatoxine Ramon has been used extensively in institutions, schools and private homes and has established its great value as an immunizing agent against diphtheria in man.

In the August 4, 1928, number of the Journal of the American Medical Association it was announced that diphtheria toxoid had been accepted by the Council of Pharmacy and Chemistry and included in the new and non-official remedies.

Toxoid is standardized by the Ramon test. This method measures the relative immunizing power of the toxoid and is also used as a guide in the production of toxoids. Briefly, the test is performed as follows: To equal amounts of toxoid in a series of tubes are added varying amounts of antitoxin. They are then incubated at 50 deg. C. and the first tube to show flocculation is considered the "indicating tube." Accordingto Ramon this tube contains a balanced or neutral mixture of toxin antitoxin.

Dosage: Most investigators have reported success with two inoculations of toxoid, but where they met with a refractory case a third inoculation was given. The average dose varied from 0.5 to 1 c.c., and an interval of 14 days to one month was permitted to elapse between inoculations. The Schick test was usually performed before treatment was begun so that

susceptible children could be isolated and immunized. Two or three weeks after the second inoculation the children were again Schick tested and those who were still positive were given a third injection. In only a few cases were reactions to toxoid observed and they were never severe, especially in children under six years of age. Those children who had any reaction to toxoid were not given another injection.

Results: Most of the investigators who have worked with toxoid or anatoxine Ramon report very satisfactory results.

Jeffrey reports that all of the 200 children treated by him built up an immunity to diphtheria.

Ruggles used toxoid on 60 inmates of a boys' home, and immunized 80 per cent of them to diphtheria. Schmidt reports that four months after the last inoculation 92 per cent of his patients were Schick negative. Moloney used toxoid on girls from 10 to 18 years of age. He gave two 0.5 c.c. doses and 75 per cent of the subjects became immune in a short while.

Martin, Loiseau and Lafailae used anatoxine on 7,000 cases to check epidemics and as a protective measure. They gave three inoculations at an interval of two weeks apart and reported that 97 to 100 per cent of their patients became immune to diphtheria. They also stated that this active immunity persisted for two years in all patients who had received two inoculations.

Nassau used anatoxine Ramon in an infants' home to avert an epidemic. Unfortunately three of the children developed pharyngeal diphtheria, one 14 days after the first inoculation and one 18 hours after the second inoculation. These failures he explained by supposing that anatoxine Ramon developes antibodies only after several weeks. In some cases six weeks may elapse before the Schick test is negative. The second case may have been due to the fact that what antibodies the patient had were temporarily destroyed by the toxoid and so rendered the child susceptible to diphtheria.

Toxoid and anatoxine have been used very extensively in Europe to prevent diphtheria. In France more than one million persons have been so immunized. The new method is now used in schools, infants' homes, private homes and hospitals on children of all ages, and on hospital attaches and army recruits. Of all these persons 80 to 95 per cent shown to be susceptible to diphtheria by the Schick test have been rendered immune. Antibodies usually appeared in the blood two to three weeks after the last injection and the number of immunes reached a high point three to eight weeks after the last injection. In younger children the immunity is greater than in adults, and children successfully immunized may not ordinarily become susceptible to diphtheria again during the period of school life. In refractory cases where two inoculations did not give immunity a third and fourth injection were found to yield ultimate success.

Conclusions: Toxoid and anatoxine Ramon have many advantages.

1. They are most successful for children in their own homes and in schools where an immediate production of antibodies is not essential.

2. They produce an active immunity. In experimental work with horses and goats it was found that considerable quantities of antitoxin were produced after inoculation with toxoid.

3. There are some children who cannot be properly immunized with antitoxin. These children are susceptible to diphtheria in its worst form and so need active immunization with toxoid. Scarlet fever is one of the diseases which retards immunization.

4. There is no reaction to toxoid or anatoxine in children, especially those six years of age or under, from 0.5 to 1 c.c. doses. Tzanck reports a case of severe anaphylaxis after the administration of toxoid. But it was found on inquiry that the patient always gave a reaction after any injection and when some of the patient's serum plus anatoxine was injected into a guinea pig it caused crises and death.

5. Toxoid does not contain any foreign animal protein and so cannot cause "serum sickness."

6. Toxoid and anatoxine are more stable than toxin antitoxin. There are no reports of any increase in toxicity after it has been found safe for use and stored awhile.

There are investigators who have found that toxoid and anatoxine Ramon also have disadvantages.

1. In some cases it takes so long to build up an immunity that the patients do not return and the doctor has no way of checking the efficacy of the toxoid or anatoxine.

2. In some cases two inoculations are not enough for immunization and so the patient may lose much valuable time and be exposed to infection.

3. As with all new discoveries the optimum amount for injection and the optimum interval between inoculations have not yet been definitely determined.

4. In many cases where antibodies are not developed soon enough this procedure is dangerous. Such delay becomes a menace in infants' homes where each child cannot receive proper examination on entrance. Nassau believes that in some cases toxoid destroys the "contact immunity" which children of long residence in institutions have built up and so may expose them to diphtheria.

Other Anatoxines: Anatoxines for other diseases have been prepared. In cholera immunization a toxoid obtained from cholera vibrio toxin is used. Kraus reports that it produces immunity to cholera in animals and when used in man in 0.5 to 1 c.c. doses gives no reaction and causes the production of antibodies which agglutinate the vibrio cholerae asiaticae.

Antitetanic "serum" is now prepared in the same way as toxoid and does away with the serum reaction which so often followed its administration.

Summary: 1. Anatoxine Ramon and toxoid are prepared from diphtheria toxin treated in such a way as to abolish its toxic properties and not injure its immunizing powers.

2. Ramon, Clenny, Hopkins and others were the pioneer workers in this field in 1921.

3. The Ramon test is used for the relative standardization of toxoid and anatoxine Ramon.

4. Anatoxine Ramon and toxoid are used to a great extent on the continent in immunization against diphtheria of children and adults in institutions, private homes, and even in the army.

5. An active immunity is obtained with toxoid and anatoxine.

6. Toxoid and anatoxine Ramon have many advantages and some disadvantages over toxin-antitoxin.

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HAVE YOU TRIED IT?

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THE JOURNAL

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

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EDITORIAL

EVOLUTION OF CLINICAL MEDICINE AND SURGERY IN RELATION TO THE PRESERVATION OF HEALTH AND LIFE.

Above is the title of the inaugural address of President Franklin H. Martin, Chicago, delivered at the Boston meeting American College of Surgeons, October 8, 1928. This address is deemed so worthy that the Executive Committee of the Congress, composed of some of the most eminent men in American Medicine, have seen fit to pass it along to medical publications in the hope and belief that it will thus reach the rank and file of the profession, who must cooperate if the best results are attained. Dr. Martin may be truly described as one of America's most brilliant medical organizers and medical executives. He was the prime mover in the organization of the American College which now numbers more than 8,200 members in many parts of the world, outside European and Asiatic countries.

Dr. Martin spoke of the evolution of scientific clinical medicine and surgery; the benefits accruing therefrom to the public; and the grave dangers attending the acceptance of services and teachings of irregular practitioners who represent unsound cults and quackery.

The outstanding conclusions suggested by the address are:

Extension of longevity from average of 58 years in 1920, to 65 years in 1930.

Extension of middle life to a marked degree, estimated to an average of 80 years by 1935.

Extension of average old age upper limit, at present approximately 90 years to an undetermined average, conservatively to 100 or 110 years by 1940 or 1950.

Degenerative diseases, the principal cause of senility, begin at 45 years, the most useful period of life.

Sudden deaths from diseases in middle life are due to neglected degenerative diseases.

Yearly examinations by one's own scientific doctor will detect early beginnings of degenerative diseases of middle life, and appropriate treatment will prevent or postpone their development.

Periodic health examinations, which guard against all preventive diseases, and many curable diseases, are urged upon old and young. An examination of the birthday is urged.

Orgies and overindulgence in eating and drinking, rather than over-work, destroy health and shorten life.

The campaign urging the public to seek yearly examinations has increased the number of examinations from 5,000,000 in 1920, to 20,500,000 in 1928.

The 18th Amendment. More than two-thirds of our people morally and spiritually favor the 18th Amendment of the Constitution. In spite of the injudicious administration of this 18th Amendment,

which has resulted in an orgy of law breaking, of self-indulgence, and ridicule on the part of the other one-third of our citizens, the foundation has been laid for a demonstration of race betterment and extension of life that will astonish the world.

Every physician should procure a copy in full of this masterly address, ponder its contents, and so far as can be put its suggestions into execution at every opportunity.

AN INVITATION TO THE OKLAHOMA PROFESSION TO THE SOUTHERN MEDICAL ASSOCIATION MEETING

The Oklahoma Profession has always been very generous in attending medical meetings and they have been unusually loud in their praise of the manner of conducting the meetings of the Southern Medical.

The high class of scientific matter obtained in these meetings, the strong bond of fellowship, the warm hospitality, and chance of seeing their friends and fellow classmates, make it more like a family meeting than any other society.

The Southern Medical is second only in size and importance to the American Medical Association and is not antagonistic but merely suppementary to that great organization.

While we are not geographically near the meeting place this year, the chance of going to such a splendid place, with ample hotel accommodations, ought to appeal to us, one and all.

Remember the date and place, November 12-15, Asheville, North Carolina.

LEA A. RILEY, M.D.,
Councilor for Oklahoma.

The Journal takes pleasure in reproducing the above invitation in the interest of better medicine in Oklahoma.—Ed.

SOME OF OUR RECENT ADMINISTRATIVE CHANGES

The new Constitution and By-Laws, adopted at Tulsa in May is now through the printer's hands and will soon be mailed. Among interesting features, which should early be understood by our members are the following:

Committee Reports—Reports of standing and special committees shall be published in the Journal of the month preceding the Annual Session, and must be in the hands of the Secretary sixty days in advance of the Session.

Committee on Arangements—The Council shall appoint, at least six months before the annual meeting, a committee of three, upon whose recommendation, the Council shall appoint a general chairman of a local committee on arrangements, who shall be a member of the society of the county in which the meeting is to be held, and this chairman shall appoint and organize from the personnel of his society the local committees on arrangements.

Public Policy and Legislation — Each county shall select a member as auxiliary to the Committee on Public Policy and Legislation to cooperate and further any move or work undertaken by the State Committee.

Standing Committees—Five are provided for, the President, however, as well as the House of Delegates, having power to appoint such other committees from time to time as they may deem necessary to carry on special work and investigations and make reports thereon.

1. Scientific Work.
2. Public Policy and Legislation.
3. Medical Defense (from the Council).
4. Medical Education and Hospitals.
5. Medical Economics.

There are many other changes, which it is believed, if adhered to, will improve the quality of our work.

MEETING OF THE COUNCIL

The Council held its annual Fall meeting October 8th in Oklahoma City for the purpose of carrying out certain mandatory provisions of the Constitution and By-Laws, and directions of the House of Delegates.

Drs. Willour, Gallaher and Thompson were appointed the Committee on Arrangements, recommending the appointment of Dr. Arthur W. White, Oklahoma City, as General Chairman, representing Oklahoma County for the next Annual Session.

A Council Committee on Auditing and Appropriations was named: the committee, Drs. Adams, Willour and Fulton.

Committee on Redistricting Councilor Districts: Drs. A. H. Bungardt, W. Albert Cook and C. A. Thompson.

The Council, upon motion of Dr. Fulton, after discussion, decided to hold two General Meetings at the next Annual Session, one of which shall be given over to orations on Medicine and Surgery. Two hours of the evening of the second day of the meeting will be given over to this meeting.

Editorial Notes—Personal and General

DR. and MRS. T. B. COULTER, Tulsa, are the proud parents of twin girls.

DR. E. T. ALEXANDER, Barnsdall, is attending clinics in Cincinnati and St. Louis.

DR. J. HUTCHINGS WHITE, Muskogee, has returned from several weeks' vacation in Minnesota.

DR. M. V. STANLEY, formerly of Tulsa, recently of Abilene, Texas, has moved to Wagoner, Oklahoma.

DR. and MRS. W. P. FITE, Muskogee, attended the Boston meeting of the American College of Surgeons in October.

DR. T. F. SPURGEON, Frederick, of the Tillman County Hospital, attended the Kansas City clinic in September.

DR. S. E. MITCHELL, Muskogee, took two weeks intensive training in avaition medicine at San Antonio in October.

DRS. J. R. SWANK, Enid, and I. V. HARDY, Medford, have been attending the Mayo Clinic since the middle of September.

DR. JACKSON BROSHEARS and family, Lawton, have returned from Colorado, where they have been for the past several weeks.

DR. H. G. CRAWFORD, Bartlesville, has returned from Rochester, Minn., where he attended clinics at the Mayo Foundation.

DR. SEYMOUR DePORTE, formerly of Ardmore, announces the opening of his office at 501-02 American National Building, Oklahoma City.

DR. HENRY H. TURNER, Oklahoma City, announces the removal of his office from the Medical Arts Building to the New Osler Medical Building.

DRS. J. S. FULTON, Atoka, and L. S. WILLOUR, McAlester, attended the Atlanta meeting of the Inter-State Postgraduate Assembly during the week of October 15th.

DRS. HORACE REED, L. J. MOORMAN and CARL PUCKETT, Oklahoma City, attended the Southern Tuberculosis Conference, held at Biloxi, Miss., September 12-15.

DR. RUTH REICHMANN, Oklahoma City, has been appointed to take the place of Dr. Mary T. Roudebush, University physician for women, whose death occurred recently.

DR. IRA W. ROBERTSON, Holdenville, has purchased the Keystone Hospital, Holdenville, from Dr. Geo. H. Wallace, assuming immediate charge. Dr. Wallace has not announced his future plans.

DR. HUGH SCOTT, Medical Officer in Charge, Edward Hines Hospital, Chicago, after attending the American Legion Convention, San Antonio, visited friends at Muskogee and other eastern Oklahoma points in October.

The first Fall meeting of the OKMULGEE-OKFUSKEE County Medical societies was held September 10, in Okmulgee. Following the dinner D. Geo. R. Osborne, Tulsa, addressed the society on "Cesarean Section." Dr. C. E. Bradley, Tulsa, gave a talk on "Scarlet Fever."

The OKMULGEE-OKFUSKEE County Medical societies met at Okemah, October 8th. Drs. M. Smith and E. S. Lain, Oklahoma City, spoke on "Cancer of the Cervix" and "Indications for X-ray and Radium," and "External Markings of Drug Reactions" respectively.

Members of the OTTAWA MEDICAL SOCIETY were guests of Oscar Hadley, V. I. Cooper and G. M. Cooper, at a dinner September 29th, at the farm home of C. J. Fribley, two miles south of Miami. Guests, other than the members of Ottawa County, were Drs. C. T. Hendershot and A. M. Smith, both of whom made addresses; also Dr. Claude Lowdermilk of Galena, Kansas.

WOODS COUNTY MEDICAL SOCIETY members and their wives attended the dinner held October 3rd, when Dr. D. B. Ensor, Hopeton, and Mrs. Essie Osborn of the Alva Hospital, were hosts. Dr. Lea A. Reily, Oklahoma City, was the principal speaker. Other guests included Dr. L. A. Turley, assistant dean of the State University, and Dr. Sterling, an interne at the University Hospital.

OKLAHOMA STATE HOSPITAL ASSOCIATION will convene for its annual meeting in Muskogee November 22-23. The guest of honor will be Dr. M. T. MacEachern, Chicago, director general, American College of Surgeons. Dr. MacEachern will deliver a public address at the Masonic Temple, open to both professionals and the laity. The meeting will be in charge of Dr. L. E. Eamnuel, President, Chickasha, A. J. Weedn, Secretary, Duncan, and T. M. Aderhold, El Reno.

OKLAHOMA STATE DERMATOLOGICAL ASSOCIATION met in Oklahoma City, October 13. Clinics were presented at the University Hospital, followed by a luncheon, discussion and recreation. At 7:30 P. M. Dr. Richard L. Sutton, Kansas City, the guest of honor, delivered an illustrated lecture on "Adventures in Tigerland." This lecture states the actual experiences of Dr. Sutton upon two extensive African and Asiatic big game hunting trips.

MUSKOGEE COUNTY MEDICAL SOCIETY met October 5th, about forty physicians being present. After a dinner at the Hotel Severs, Dr. Dwyer, Kansas City, delivered a talk on the "Prevention of Infant Mortality"; Dr. Ray M. Balyeat, Oklahoma City, on "Asthma in Children," and Dr. Frank H. Turner, Oklahoma City, upon "The Early Diagnosis and Treatment of Endocrine Disturbances." The meeting was a success.

THE LINCOLN COUNTY MEDICAL SOCIETY met in regular session with Dr. Nickell, the president, at Davenport, September 20th. Those present were: Drs. U. E. Nickell, J. S. Rollins, H. C. Iles, J. W. Adams, A. W. Holland, W. P. Cottrell, J. M. Handcock, A. W. Coleman and W. D. Baird. Visitors were Drs. A. L. Blesh and J. Z. Mraz, Oklahoma City. Dr. Mraz was introduced and gave a discussion on "Referred Pains in Differential Diagnosis." Dr. Blesh gave a talk on "Goitre." Dr. Rollins, speaking for the doctors of Prague, invited the society to meet at Prague for the October meeting. The invitation was cordially accepted.

DR. C. C. RICHARDS was host to the Stephens County Medical Society at their September meeting. The following program was rendered: "Dental Infections," Dr. A. B. Leeds, Chickasha; "Focal Infections of the Head," Dr. J. L. Patterson, Duncan; "The Duties of A Health Officer," Dr. D. Long, Duncan. The following members were present: Drs. Russell, Carmichael, Salmon, Patterson, Williamson, Long, Ivy, Pate, Smith, Bartley, McMahan, McLain, Richards, Overton, P. B. Hall, Burnett, Weedn, Talley, Brewer and Nieweg. The following visiting doctors were present: Drs. A. B. Leeds, Chickasha, and Henry Weedn, California. Drs. J. B. Carmichael and J. P. Bartley will be hosts at the next meeting.

TULSA COUNTY MEDICAL SOCIETY meeting October 8th, was presented the following program: Symposium on Nephritis. (1) "Acute Glomerular Nephritis—Causes, Symptoms and Laboratory Findings," Dr. D. O. Smith; (2) "Chronic Glomerular Nephritis—Causes, Symptoms and Laboratory Findings," Dr. S. C. Shepard; (3) "Chronic Intestinal Nephritis—Causes, Symptoms and Laboratory Findings," Dr. Robert Witcher; (4) "Treatment of Nephritis," Dr. W. J. Bryan, Jr.; (5) Lantern Slides, illustrating pathology in each type of nephritis.

DOCTOR MARY T. ROUDEBUSH

Dr. Mary T. Roudebush, 35 years old, resident physician for women at the Oklahoma State University, died suddenly Friday night, September 14, at her home in Norman. The body was sent to Jackson, Tenn., her former home, and burial services were held September 16th.

Dr. Roudebush was born in St. Louis, Mo., August 23, 1893. She attended the Mississippi State College for Women, where she received the bachelor of science degree in 1913. She received a bachelor of science degree from the University of Wisconsin in 1918, and an M. D. degree from John Hopkins University, Baltimore, Md., in 1920. Dr. Roudebush had studied for a time in the University of Vienna. Before coming to the University of Oklahoma in 1927, Dr. Roudebush had been physician for women at the George Peabody College for Teachers, at Nashville, Tenn.

DOCTOR ISSAC ANSELL BRIGGS

Dr. Issac A. Briggs, Stillwater, died September 27, 1928, following an emergency operation for gall bladder disease.

Dr. Briggs was born November 22, 1869, near Bakersville, N. C. He was educated at Milligan College in the eastern part of Tennessee, after which he was president of Stewart Normal College for a term of five years. After attending different medical schools he was graduated at Barnes Medical School, St. Louis. He removed to Oklahoma in 1901, practicing at Atoka, Enid and Hollister. He located in Stillwater after this, where he remained in practice until his death.

Dr. Briggs is survived by his widow and a son and daughter. Midnight funeral services were held at the Christian Church by the Masonic Consistory. Burial was made at Fairlawn Cemetery.

Dr. Briggs had built up an extensive practice and a large circle of friends during his residence at Stillwater.

UROLOGY and SYPHILOLOGY

Edited by Rex Boland, B.S., M.D.
1010 Medical Arts Building, Oklahoma City.

CLIPPINGS FROM THE UROLOGIC AND CUTANEOUS REVIEW

For post-arsphenamine serous encephalitis adrenaline intravenously is the most effective drug.

Lesions of the hat-band region, if at all nodular, should be followed up with a Wassermann test.

Have the output of your X-ray tube checked up from time to time by means of an ionometer.

Five per cent of all patients with prostatic obstruction also present a diverticulum of the bladder.

If syphilitics in the early stage were less able to be ambulatory, it would be better for their syphilis.

One of the best bases for an ointment that is to be thoroughly rubbed into the skin is glycerite of starch.

As a rule, age for age, elderly women tolerate slightly more intensive anti-syphilitic treatment than do elderly men.

A priapism of more than twenty-four hours duration will be found to be complicated by thrombosis of the cavernous sinuses.

The urine of a syphilitic should be tested for albumin at bi-weekly intervals even though he has been receiving only bismuth therapy.

Because a stone or diverticulum is found with considerable difficulty, do not let "that tired-feeling" lead you to be content with what you have found; remember that there may be other lesions which will show up on later, more complete examinations.

Urology in Childhood.—Herman L. Kretschmer, in the Atlanta Medical Journal, for April, 1928, writes that urologic problems in infancy and early childhood resemble similar problems in the adult. The technic can be mastered with practice, and once the operator becomes expert with the small instruments, no difficulties will present themselves. At the present stage of advancement in medical knowledge, procrastination, in place of careful and complete urologic study in all cases that do not promptly respond to treatment, has not the shadow of an excuse. Instrumental therapy, by which is meant lavage in pyelitis and litholapaxy in the treatment of stones in the bladder, can be carried out with the same precision as in adults. The surgical treatment of the various lesions encountered presents no special problems.

Chronic Pyelitis in Infancy and Childhood.—Henry F. Helmholz, in the Atlantic Medical Journal, for April, 1928, insists that cases of acute pyelitis should be followed until it is certain that the infection has disappeared bacteriologically as well as clinically, in order that cases which cannot be cured medically and need special urological examination may be recognized. In a certain percentage of cases, chronic pyelitis can be cured by intensive use of methanamin with ammonium chlorid. Infections which do not respond to treatment are usually complicated by anatomic obstruction of the urinary tract. Early urologic examination and surgical treatment will prevent extensive renal injury from chronic infection and back pressure.

Urography—Common Diagnostic Errors.—Miley B. Wesson, in Radiology, for May, 1928, says that pyelography was a procedure fraught with danger ten years ago, but today, because of the universal use of harmless 12 per cent sodium iodid as the opaque medium, it is no more dangerous than the passage of a urethral sound. The ideal method of injection is by gravity, using two burettes held in a clamp 18 inches to 24 inches above the patient. Under-injection results in erroneous diagnosis and over-injection (with syringes) spoils the films and causes the patient a few hours or days of discomfort. Bilateral pyelograms are very comforting to the roentgenologist for most abnormalities that occur on both sides are congenital and not the result of acquired pathology. Any patient who will tolerate bilateral ureteral catheterization is a subject for bilateral pyelography; in one case the kidney pelves are lavaged with silver nitrate and the other with sodium iodid. Single pyelograms subject the patient to an unnecessary double expense.

Cystoscopy Reactions.—H. L. Wehrbein, in Annals of Surgery, for March, 1928, says that the presence of infectious organisms and trauma are the most important factors in the causation of cystocopy reactions. Cystoscopy reactions are far more common in men than in women. The skill and gentleness of the operator play an important role in the incidence of cystoscopy reactions. Elevated temperature and infection of the urinary tract, with the exception of acute prostatitis are not absolute or even common contraindications to cystoscopy. Cystoscopy should not be undertaken lightly, pyelography is still more serious than simple ureteral catheterization, and double pyelography should be performed only under the pressure of unusual circumstances.

Late Results From Tryparsamide Therapy in Neurosyphilis.—W. F. Lorenz, in the Journal of the American Medical Association, for April 21, 1928, urges that, as a result of his experience and review of results after the lapse of five to six years, every case of syphilis of the central nervous system be treated energetically. Tryparsamide and mercury offer a convenient and remarkably effective treatment. It is necessary to select cases in making a choice of tryparsamide, other arsenicals, malarial inoculaion or other therapy of proved value. In the instance of tryparsamide, an extensive trial should be made before the drug is discarded. There are now many patients who have enjoyed health and efficiency for periods of from five to six years as the result of treatment with tryparsamide and mercury. These are largely cases that would have otherwise, without doubt, passed on to hopeless chronicity and death. As a result of this review, it is my conviction that absolute differentiation by either clinical or serologic evidence between amenable and resistive cases cannot be made before a therapeutic trial. Early improvement is very encouraging and argues for a persistence of the efforts insti-

tuted. Lastly, a point that cannot be too much emphasized is the practice of regarding every case an individual problem in which all the evidence, clinical and serologic, must be weighed before planning the therapeutic attack.

ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M. D.
717 North Robinson St., Oklahoma City

Poliomyelitis: With Especial Reference to the Treatment. By W. Russell MacAusland, Philadelphia, Lea and Febiger, 1927.

This monograph of 402 pages is divided into two parts. Part 1 consists of eight chapters dealing with Epidemiology, Etiology, Pathology, Symptomatology, Classification of Types, and Diagnosis and Prognosis. Part 2 takes up treatment in six chapters under the following headings: General Treatment, Treatment of the Lower Extremities, Treatment of the Upper Extremities, The Restoration of Muscle Power, The Surgical Treatment of Paralysis, Apparatus and Plaster.

The book has been well edited and is remarkably free from the usual errors of an initial print. The author's objective, as set forth in the preface, in establishing a comprehensive account of the disease, is fulfilled in Part 1. The chapter on Epidemiology is especially good.

The arrangement of Part 2, in dealing with all phases of treatment, leaves much to be desired. Early operations are quite clearly discountenanced by the author in some sections, but in others he is not definite, and the unqualified surgeon is likely to seize upon this part of the text as authority for surgical experience.

It seems doubtful whether anyone could so arrange this part of the subject matter as to entirely meet the requirements of general practitioners and orthopaedic surgeons. It is also improbable that a work of this sort would be free from such debatable points as operations of choice, age factors, etc.

In reference to stabilizing operations on the foot, no one who has mastered the technique of Hoke's operation will be discouraged by the author's comment, nor greatly impressed by his modification, as depicted on page 341.

On the whole, however, Dr. MacAusland's book is quite worth while.

The Stabilization of the Flail Leg: H. Tyrrell Gray. British J. Surg., xv, 390, January, 1928.

Arthrodesis of the knee is advocated in cases of extensive infantile paralysis of the lower limbs. At the end of two years after the onset of the paralysis, cases are selected in which there has been no return of muscle power or where the patient is unable to bear weight without heavy braces. A narrow bone graft three inches long is taken from the crest of the tibia. The knee is opened, the cartilage is removed from the tibia, femoral condyles, and patella and the semilunar cartilages are excised. A hole is then drilled through the epiphyses of the tibia and the femur and the graft inserted into the diaphyses. The leg is put in plaster for two months. In most cases the ankle joint has been arthrodesed also.

Case reports are given of nine cases. Ankylosis took place in each case. The results were satisfactory except in two cases where there was extensive oedema of the extremity. In one this cleared up after several years, but a marked genu valgum appeared. In the other the swelling has remained. The author does not think that the damage to the epiphyses from the graft is serious enough to consider it.

Operative Correction of Claw-Foot: Hans Spitzy. Surg. Gynec. Obstet., xlv, 813, December, 1927.

The most severe cases are congenital. The cause is usually myelodysplasia, a derangement of development of the lower segments of the spinal cord, often associated with spina bifida. Other causes are syringomyelis, multiple sclerosis and other types of paralysis of peripheral nerves. The author's operation consists of his "slipper incision" around the heel and posterior half of the foot, reflecting all the soft tissues downward and then forward from the heel and under surface of foot, including the ligaments under the mid-tarsal region, thus permitting the pes cavus to be corrected completely. If, after this, there remains marked claw deformity of the toes, he transplants the extensor tendons of toes into the heads of the metatarsals. It is claimed that this operation was devised independent of, if not prior to, the work of Steindler, and presumably, of Jones.—R. W. Billington, M.D., Nashville, Tenn.

EYE, EAR, NOSE and THROAT

Edited by Jas. C. Braswell, M. D.
726 Mayo Bldg., Tulsa

On Pseudoglaucoma: Fuchs, A.; Brit. J. Ophth., 1928, xii, 65.

In this paper, Fuchs discusses seven cases of pseudoglaucoma. The first patient had a congenital pit in the optic disc co-existing with a glaucomatous excavation of 4 diopters. The upper half of the visual field was lacking; central vision with glasses was 6-12; tension was 22 mm. Hg. (Schiotz) before and after the administration of homatropin and after dark adaptation.

In the second case a coloboma of the nerve head produced an appearance of glaucoma, but the following contra-indications to this condition were present: a semi-opaque tissue (neuroglia) filling the excavation; tension of 20 mm. hg.; enlargement of the papilla; a horizontally oval blind spot; and the fact that in a year there had been no change.

The third case was somewhat similar to the second. Enlargement of the pupilla was questionable. Surrounding the pupilla was a halo more than 1 diopter depressed from the level of the retina and irregularly outlined with pigment. The field and tension were normal. A sister of this twelve-year-old patient had a conus inferior.

In each of the four other cases, angiectasis of the eyeball was present and resembled the congestive type of glaucoma in that the dilated conjunctival and ciliary veins produced an appearance of caput medusae. In one of these patients there also existed a region of angiectasis in the nasolabial fold.

Posterior (Mastoid) Drainage in Acute Suppuration of the Middle Ear: McKenzie, D. Proc. Roy. Soc. Med., Lond., 1928, xxi, 616.

Late operations on the mastoid have been the rule, but McKenzie in his article recommends early mastoid drainage of middle ear suppuration as a cure for a purulent otitis media in which simple

meatal drainage has failed. He has performed this type of operation in thirty-one cases. Two of the patients developed erysipelas, two required a second drainage operation, and one patient died of meningitis.

The author strongly recommends posterior drainage at a reasonably early date in cases of chronic suppuration.

Some Notes on Paracusis Willisii from the Ferens Institute of Otolaryngology: Hastings, S., and Scarff, G. R. Proc. Roy. Soc. Med., Lond., 1928, xxi, 611.

Hastings and Scarff report the results of tests made in thirty cases of middle-ear deafness. In these tests, they used a Tucker audiometer with which a pure note is electrically produced. In two cases there was absolute paracusis, the second being heard better while the disturbing noise was being made. Sixteen cases showed a relative paracusis. In twelve cases a crossed paracusis was observed.

The authors state that as far as they know, this phenomenon has not been described previously. They offer no explanation of the condition but conclude that only a few persons actually hear better while a noise is being made.

Discussion on Deep X-ray and Radium Therapy in Relation to the Mouth and Upper Respiratory Tract: Watt, W. L., Finzi, N. S., Cade, S., Milligan, Sir W., and others. Proc. Roy. Sec. Med., Lond., 1928, xxi, 649.

Watt believes that the action of deep rays directed on an area to be treated chiefly affects the nuclei of the cells. Two reactions appear after deep raying. The primary reaction consisting of swelling of the glands and rapid reduction in size appears within a few hours. There is some systemic disturbance including fever, malaise, nausea, and vomiting caused by the absorption of the destroyed cells. The secondary reaction appears at the end of the third week and is similar to the primary reaction.

In treating solid tissues the rays are well diffused, but when the throat is treated such is not the case because of the insufficient body fluid coverings and the presence of large air cavities. To overcome these defects, glucose is used to increase the density of the body fluids, and the rays are softened so the absorption will be more thorough. Whenever possible, surgery is advisable, but the author prefers diathermy combined with radiation. Radiations appear to produce antibodies which remain active for long periods and tend to inhibit the recurrence of the disease. Prophylactic radiations from eighteen months to two years after the primary raying are advised at times. While the question of dosage is difficult the author now endeavors to give the growth the same amount of rays as will cause a slight skin reaction within three days. After-treatment should include exposure to artificial sunlight.

Finzi is satisfied that some types of sarcoma yield more readily to treatment than do epitheliomata or carcinomata. The immediate dangers of applying X-ray or radium to the larynx are oedema of the larynx and secondary hemorrhage. A remote danger is a board-like hardening of the skin and subcutaneous tissues which are thus predisposed to infection. For laryngeal epithelioma, treatment with radium yields at least as great a percentage of cures as does surgery, while with lymphosarcoma the response to radiation is dramatic. Finzi feels that cooperation between the surgeon and radiologist is essential in order to choose the form of treatment which will offer the best prospects.

Cade treats malignant disease of the oral cavity by attacking the primary growth in the mouth and also the secondary deposits in the neck with radium. Should the tumor be embedded in an area of oedema the results are very unsatisfactory.

Milligan thinks that radium treatment is proving very valuable and that the prospects for improvement in the treatment of malignant disease are encouraging.

DERMATOLOGY AND RADIOTHERAPY

Edited by C. P. Bondurant, M.D.
413 Medical Arts Building, Oklahoma City

Pellagra: Its Nature and Prevention. U. S. P. H. Report, September 2, 1927. Joseph Goldberger.

In general an attempt is made to answer some of the more important questions which the public and general physician asks regarding pellagra. Considerable attention is given to symptoms and especially to cases which do not present the whole clinical picture. In a well developed case the disease shows itself by a variety of symptoms; of which an eruption, weakness, nervousness and indigestion form a most characteristic combination. The eruption is the most distinctive telltale of the disease and the main reliance in its recognition. This eruption characterizes itself by a predelection for certain surfaces; the backs of the hands, forearms, and the backs of the feet are its favorite sites. A burning or scalded feeling in the mouth, redened tongue, burning of the hands and feet and looseness of the bowels in persons who have restrained themselves to a limited diet, even in the absence of skin changes, should be regarded as justification for a suspicion of the disease. Insanity is a late symptom and is far less common than once thought. There is a direct relation to living cost in the incidence of pellagra, the poor man being the chief sufferer. Statistics from 1914 to 1921 are given to justify this statement. No germ can properly be considered its cause. Inoculation by blood and saliva has never been successful. Facts are set forth to prove that pellagra is caused by subsisting on a special kind of faulty diet and that people who consume a mixed, well-balanced diet do not develop the disease. The pellagra-preventing vitamin is thought to be present in nearly all natural foods except the oils and fats. Proper diet guards against recurrence.

Rontgen Protection for the Personnel: B. K. Rosenweig: Charkow (Fortschr, d, Rontgenstr. Bd. 36-H, 4).

The author permits the personnel to be present in the treatment room when intensive therapy is being used only when the tube is completely isolated so as to avoid all aberrent rays. When the tube is not isolated the room in which the personnel during the treatments should be shielded by a barium or lead wall 6 mm. in thickness and extending a few cm. below the floor. A protection cabin is suggested as a method of protection from the emanation of the irradiated patient. Where the tube is used for diagnostic purposes the lower part of the body of the examiner should be shielded by proper screening. The room should be well

ventilated with vents just above the floor, as these heavy asphyxiating gases sink. The use of the bare hands for palpation below the screen is warned against. In this connection it must be remembered to use the tube on as short a time as possible. Great caution with the X-ray must be exercised with persons who have hypersensitivity of the skin, endocrine disturbances, Grave's disease, psoriasis, eczema, diabetes and cardiac diseases and are to be warned against X-ray occupational careers.

Pellagra: W. A. Dearman, Southern Med. Jour., September, 1928.

The Greek and Latin derivation of the word pellagra suggest its cutaneous picture, and while the gastro-intestinal and neuropsychiatric symptomatalogy is outstanding, a diagnosis cannot be made unless the cutaneous manifestations are present. Little information is available concerning the specific cause other than the important roll played by an unbalanced diet. Reliable authority and accurate statistical data are given to indicate that the disease is not on an increase in the south. Control of the disease goes together with advances in education and general improvement. Tables given indicate that twice as many cases occur in negroes as in the white race. The treatment of pellagra is preventative, curative and palliative. The general diet suggested is the liberal consumption of fresh, wholesome milk, lean meat, fresh green leafy vegetables, fruit, cereals, cream and fresh eggs. In the discussion many interesting points were brought out by Dr. Jos. Goldberger. He cited the work of his own laboratory with experimental animals and gave some valuable points on the dietary etiology of pellagra.

Etiology of Erythema Nodosum: M. Arborelius. Hygeia. 90-265, April, 1928.

Arborelius is of the opinion that this eruption is a form of nonspecific reaction occurring in various infections. He credits recent tuberculous infection as foremost in childhood and early youth, with other infections being the usual factor in adults. He discusses freely the compatibility of his views with other recent theories of the tuberculosis and rheumatic origin of erythema nodosum. He also notes its seeming contagious nature. An interesting case of erythema nodosum occurring in polyarthritis is described.

The Serum Treatment of Erysipelas: W. S. McCann, J. A. M. A., 91-78. July 14, 1928.

The results of 115 cases of erysipelas are analyzed by the author after he had given the serum treatment. His conclusions are that the true value of this method of therapy in the treatment of erysipelas cannot be established until further study can be made of longer series with simultaneous controls on which the serum had not been used. He credits seasonal and annual variations with much importance in this connection. He also thinks the cases should be balanced according to age of patients, and character and distribution of the lesions. He records considerable objection to previously published reports on the last of inadequate controls. The results obtained in these cases do not entirely discredit the serum therapy.

Report of Examination for Licenses to Practice Medicine

Report of Oklahoma Board of Medical Examiners, held in Senate Chamber, State Capitol, Oklahoma City, September 11 and 12, 1928; number of subjects examined in, 12; total number of questions, 120; percentage required to pass, 75; total number examined, 5; number passed; 5. All applicants, regular school of practice, and licensed by written application.

Name	Year of Birth	Place of Birth	School of Graduation	Year of Graduation	Address
Baird, Cecil Dryden	1902	Owensboro, Ky.	University of Okla.	1927	Eureka, Kansas
Saler, Donald Hall	1897	Harrisburg, Pa.	Western Reserve	1926	DeNoya, Oklahoma
Calhoun, Walter Henry III	1898	Newbern, N. C.	University of Va.	1925	Tulsa, Oklahoma
Chalmers, James Scott	1894	Chicago, Ill.	University of Va.	1926	Ada, Oklahoma
Coachman, Edwin H., Jr.		Fluffton, Ga.	University of Mich.	1926	Muskogee, Oklahoma
Halley, Claude Dickerson	1881	Reform, Mo.	St. Louis University	1910	Maude, Oklahoma
Morrison, Henry Clinton	1896	Cleora, Okla.	University of Tenn.	1924	Maude, Oklahoma
Dill, Francis	1903	Okeene, Okla.	Creighton Medical	1928	Oklahoma City
Sabin, Clarence Willard	1896	Manchster, Iowa	Nebraska University	1928	Tulsa, Oklahoma
Stephenson, Joseph Clark	1886	Sheridan, Ind.	Rush Medical College	1925	Oklahoma City
Van Valin, James C.	1904	Herman, Neb.	Nebraska University	1928	Tulsa, Oklahoma
West, Thomas Hector	1905	San Marsial, N. Mex.	University of Tenn.	1928	Tulsa, Oklahoma
Boys, Fay Frank	1901	Kansas	University of Kansas	1927	Pearson, Oklahoma
Pigford, Russell Clarke	1898	Mississippi	Tulane University	1924	Tulsa, Oklahoma
Spaulding, Henry Brooks	1889	Crawford, Neb.	University of Mich.	1918	Ralston, Oklahoma

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